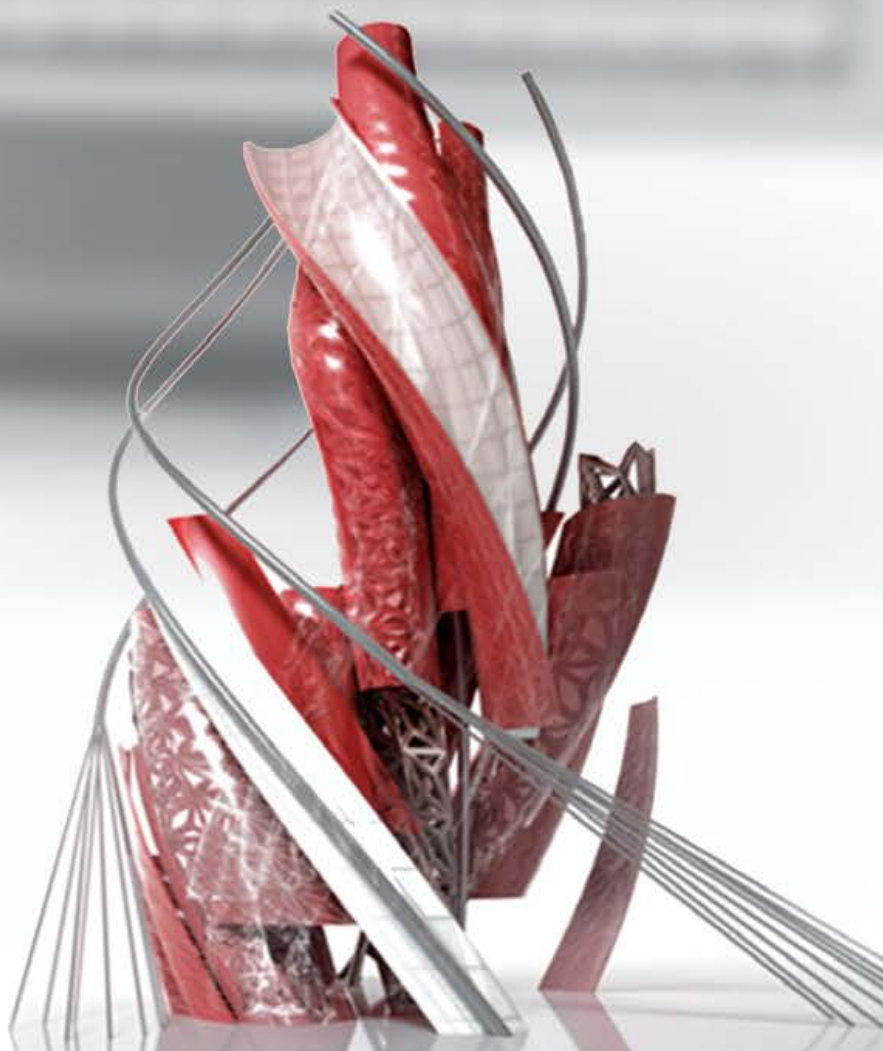
OMGUTS.com

AUTOCAD

MY FIRST STEPS IN AUTOCAD



FREE E-BOOK

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Little bit about Autocad

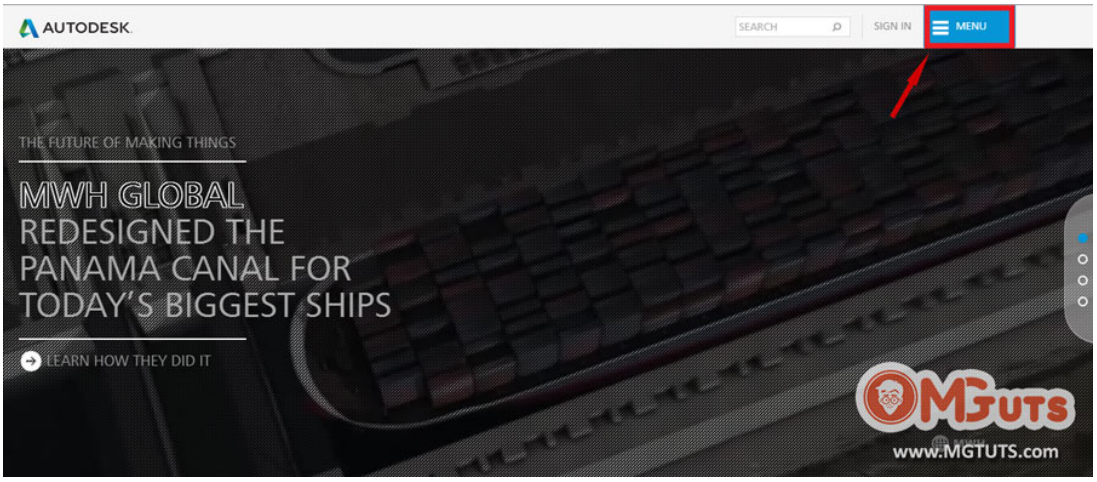
Autocad developed by Autodesk company in 1982 year. Autocad intended for technical design works in different sectors. Autocad leader between CAD software. Although AutoCAD has several versions for different sectors, it can be used for all types of works, from Architecture to engineering and design.

How to download and install Autocad Student version?

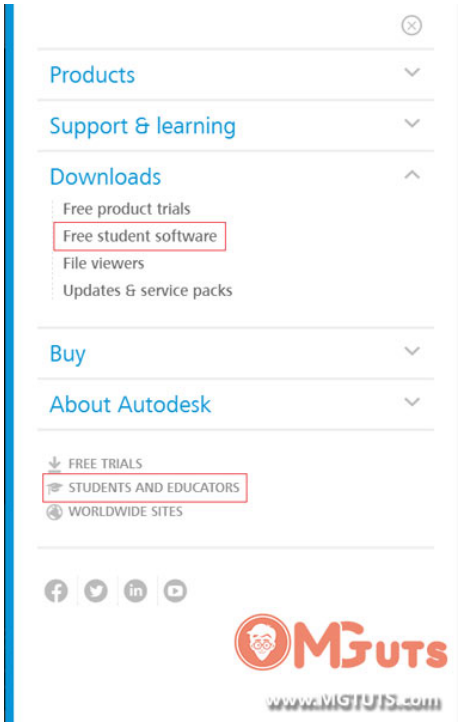
So let's begin. I will show you step by step how you can easily and free download and install a free Student version of Autocad. So you can ask why free and is that legal? Yes, that is the real legal free license of Autocad. Autodesk company offer free student version for education. In student version no any functionality limitation from the standard version. Except student version can be used only for education and no any commercial use.

Free student version you can download from Autodesk website.

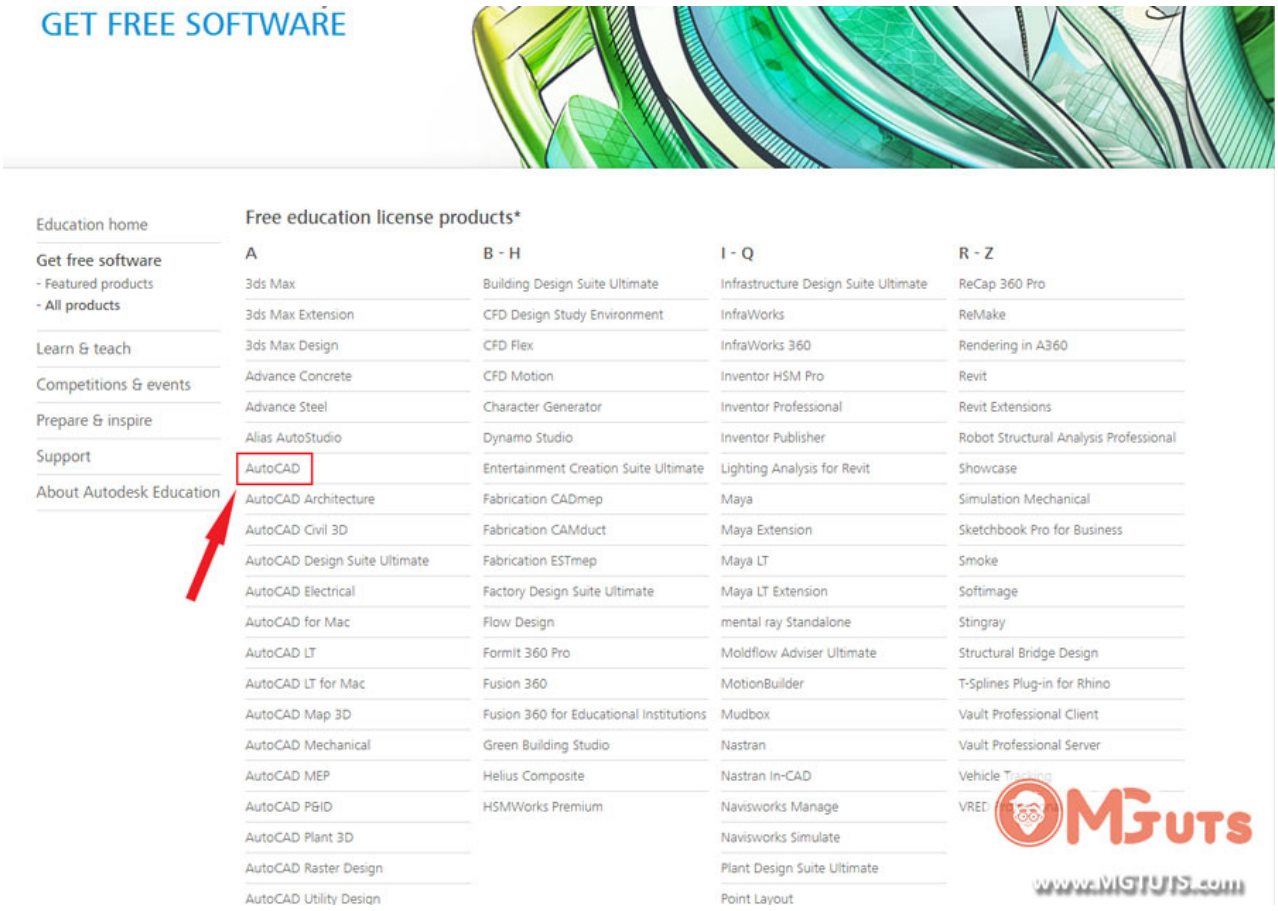
1. Go to Autodesk.com website and click on Menu on the right corner.



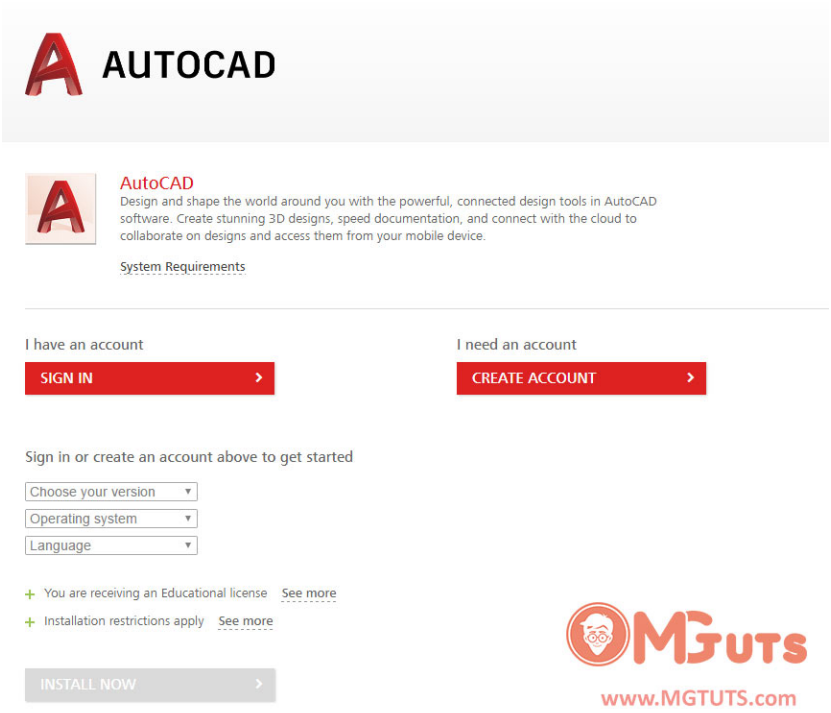
2. Select from menu **Free Student software.**



3. You will see list of software that you can download. Choose from list Autocad.

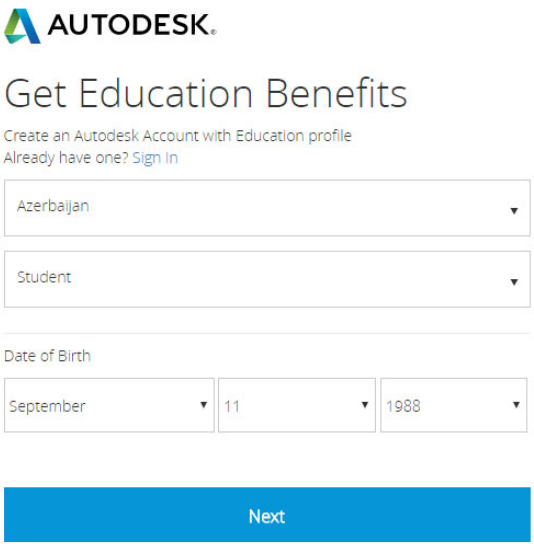


4. You will be redirected to new page and for downloading you will need Login or Create new Account on Autodesk website to download Autocad.


AUTOCAD
AutoCAD
Design and shape the world around you with the powerful, connected design tools in AutoCAD software. Create stunning 3D designs, speed documentation, and connect with the cloud to collaborate on designs and access them from your mobile device.
System Requirements
I have an account
SIGN IN
I need an account
CREATE ACCOUNT
Sign in or create an account above to get started
Choose your version
Operating system
Language
You are receiving an Educational license See more
Installation restrictions apply See more
INSTALL NOW
MGTUTS
www.MGTUTS.com

In registration on Autodesk website no big difference between registration on another website. But there are had some nuances that can be little difficult for new beginners. That's why we will pass all step by step.

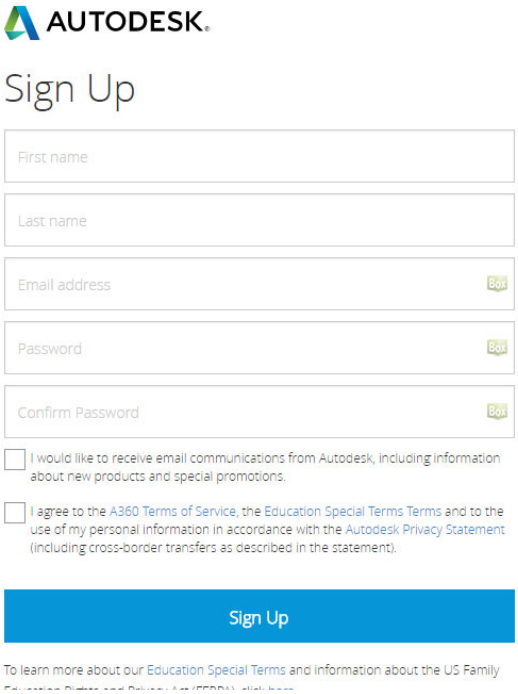
To register click on red button **CREATE ACCOUNT.** You will be redirected to new page and on the first step, you need to choose your country educational role, and birthday.



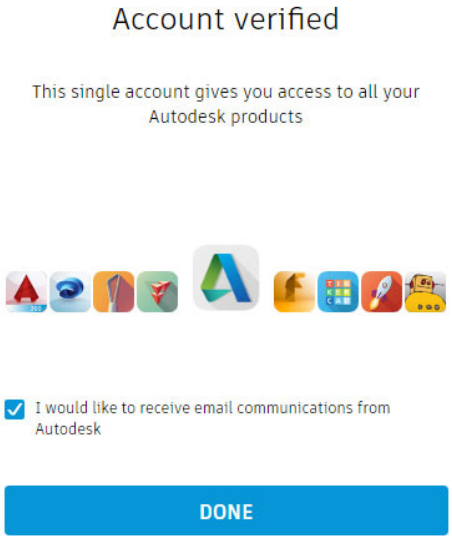
In the educational role, you can choose from 4 roles. We will choose student

After you enter all data click on button **Next**

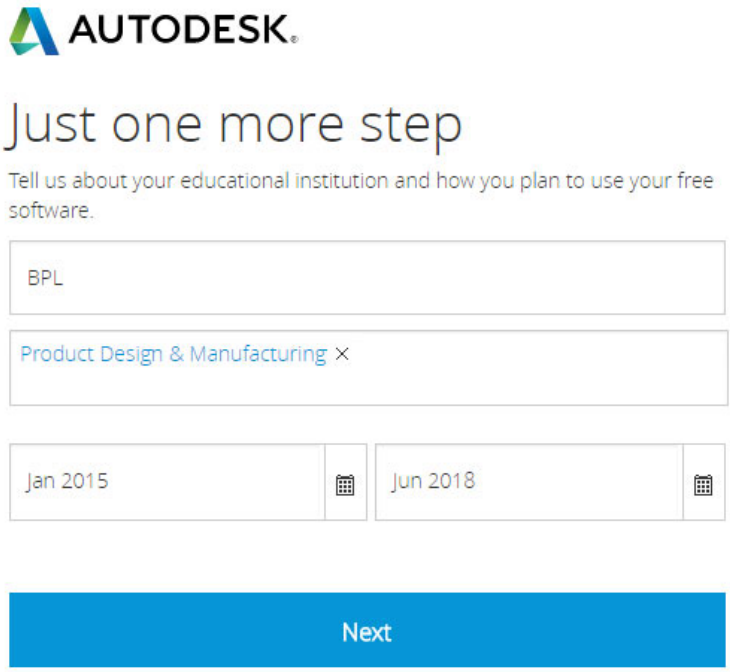
In the next step, you need to enter Your name, Second name, Email, Password and agree with terms. After all, clicks on button **Sign UP.**


AUTODESK.
Sign Up
First name
Last name
Email address
Password
Confirm Password
I would like to receive email communications from Autodesk, including information about new products and special promotions.
I agree to the A360 Terms of Service, the Education Special Terms Terms and to the use of my personal information in accordance with the Autodesk Privacy Statement (including cross-border transfers as described in the statement).
Sign Up
To learn more about our Education Special Terms and information about the US Family

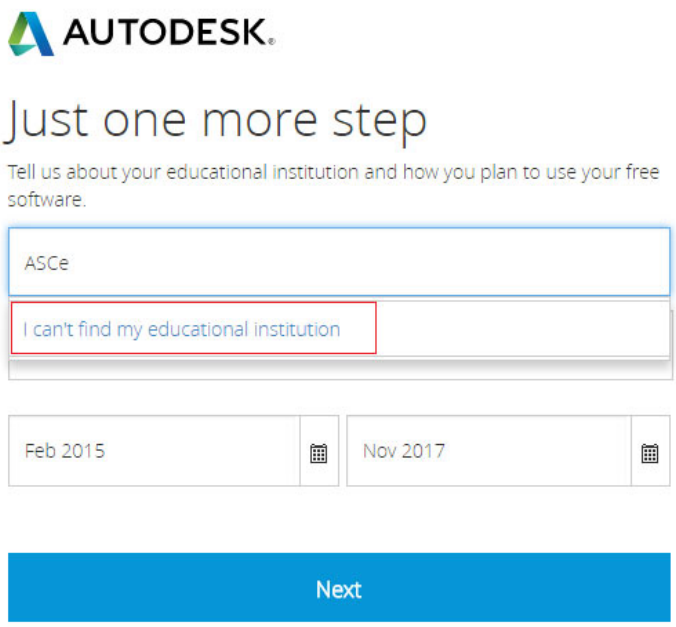
After that, you need to verify your email address by clicking on verification button that you will get to an email address after sign up.


Account verified
This single account gives you access to all your Autodesk products
I would like to receive email communications from Autodesk
DONE

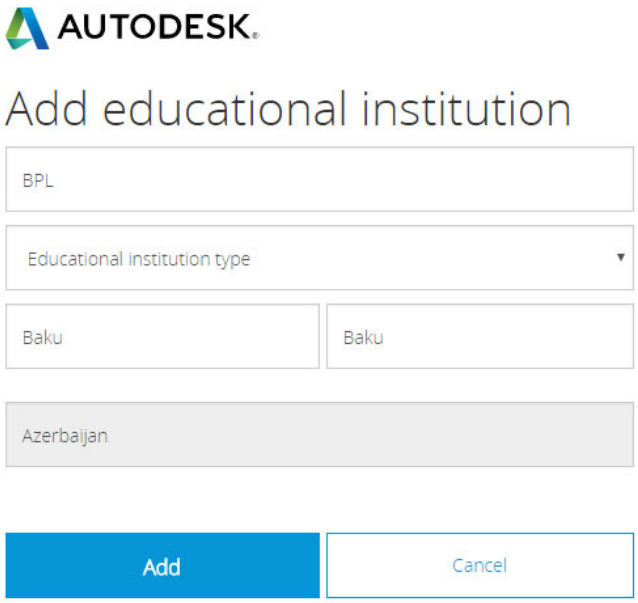
After clicking on **Done** button you will be redirected to another page. Where you must enter name of educational institute, area of study and education time.



Enter any educational institute in your city or country. If you will get error Please select your educational institution Then click on I Can't find my educational institution.


AUTODESK.
Just one more step
Tell us about your educational institution and how you plan to use your free software.
ASCe
I can't find my educational institution
Feb 2015
Nov 2017
Next

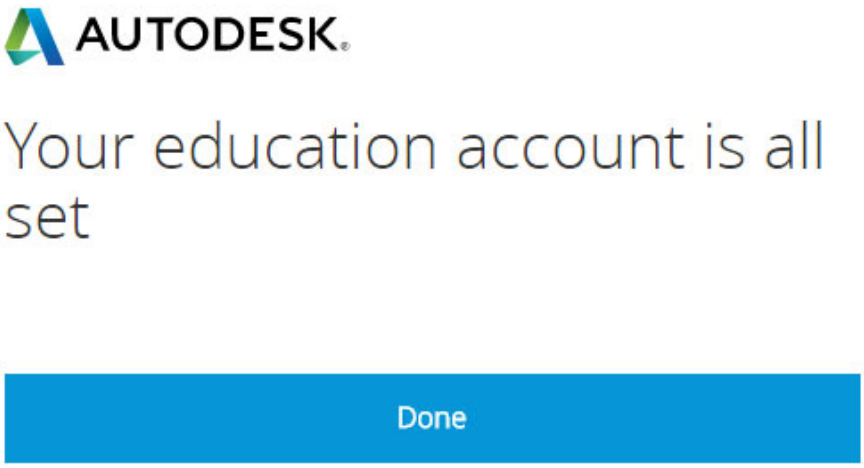
You will get another form. Enter any education institute name in your city and fulfill all another field.



After that click button **Add.**

You will return back and now you can click on button **Next.**

You will get new message

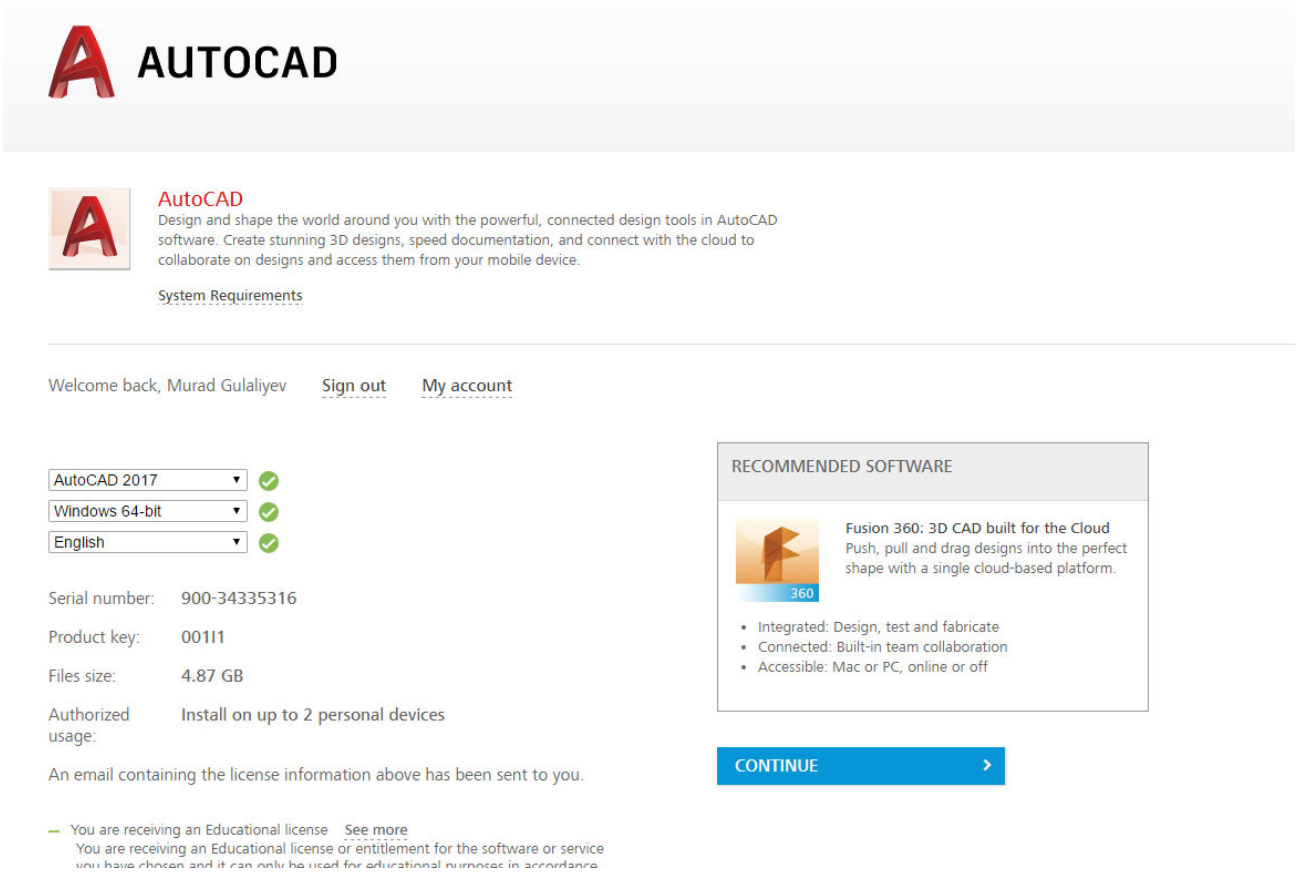


Click on **Done** button and agree with **Term of Service** on the next page and click on **Continue** button. You will get Email from Autodesk. Don't delete that email because it contains important information for the installation process.

Congratulation we are already done. Now we can download AutoCAD for free.

After clicking on Continue button you will redirect to AutoCAD download page or you can click here to go to AutoCAD download page.

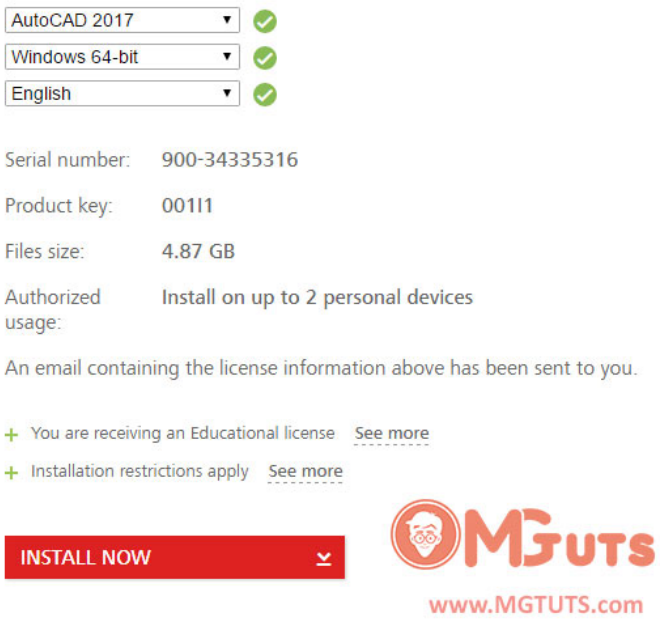
Now you need to choose Autocad Version, Operation system, and language.


AUTOCAD
AutoCAD
Design and shape the world around you with the powerful, connected design tools in AutoCAD software. Create stunning 3D designs, speed documentation, and connect with the cloud to collaborate on designs and access them from your mobile device.
System Requirements
Welcome back, Murad Gulaliyev
Sign out
My account
AutoCAD 2017
Windows 64-bit
English
Serial number: 900-34335316
Product key: 001I1
Files size: 4.87 GB
Authorized usage: Install on up to 2 personal devices
An email containing the license information above has been sent to you.
You are receiving an Educational license
See more
You are receiving an Educational license or entitlement for the software or service
RECOMMENDED SOFTWARE
Fusion 360: 3D CAD built for the Cloud
Push, pull and drag designs into the perfect shape with a single cloud-based platform.
Integrated: Design, test and fabricate
Connected: Built-in team collaboration
Accessible: Mac or PC, online or off
CONTINUE

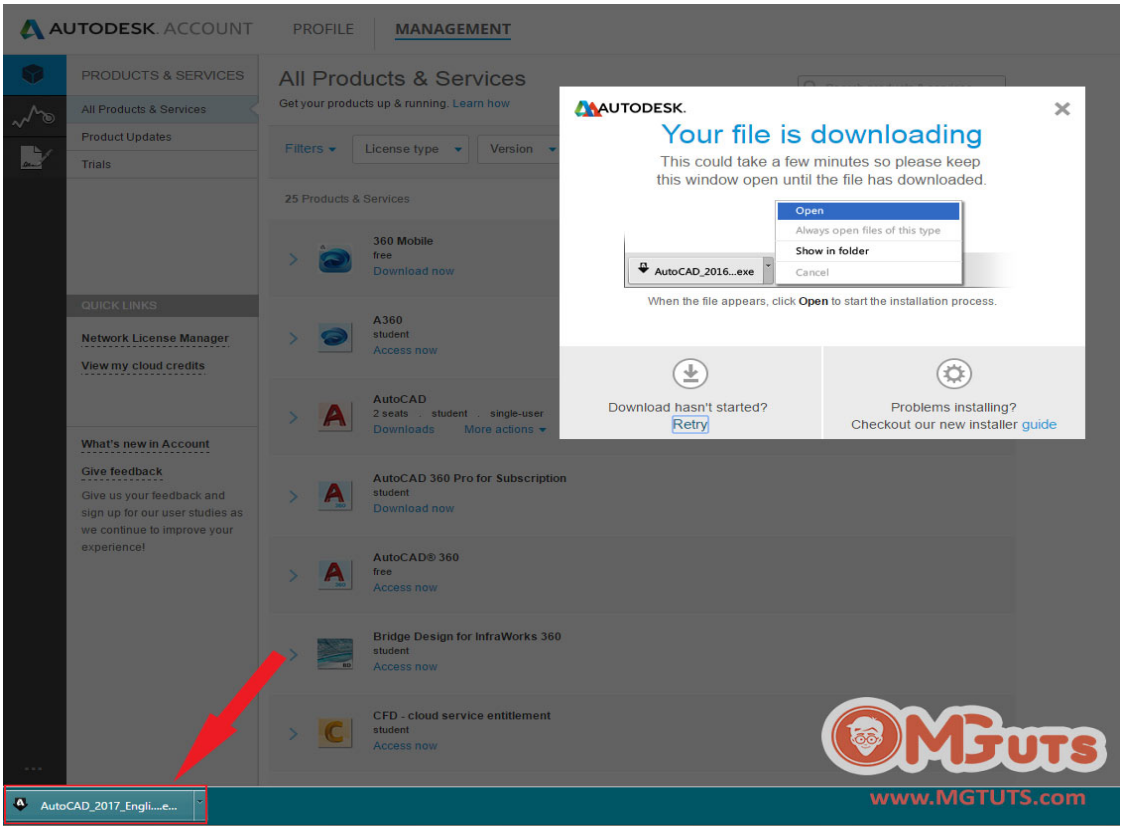
After all, you need just download and install Autocad.

How to Install Autocad Student version

For first we need login in Autodesk website. After login, go to Autocad download page and choose which version of AutoCAD you want to install. After that, click on red **Install Now** button at bottom of form


AutoCAD 2017
Windows 64-bit
English
Serial number: 900-34335316
Product key: 001I1
Files size: 4.87 GB
Authorized usage: Install on up to 2 personal devices
An email containing the license information above has been sent to you.
You are receiving an Educational license See more
Installation restrictions apply See more
INSTALL NOW
MGUTS
www.MGTUTS.com

Autocad installer will download to your computer. Installer size is very small. Just click on it and open.



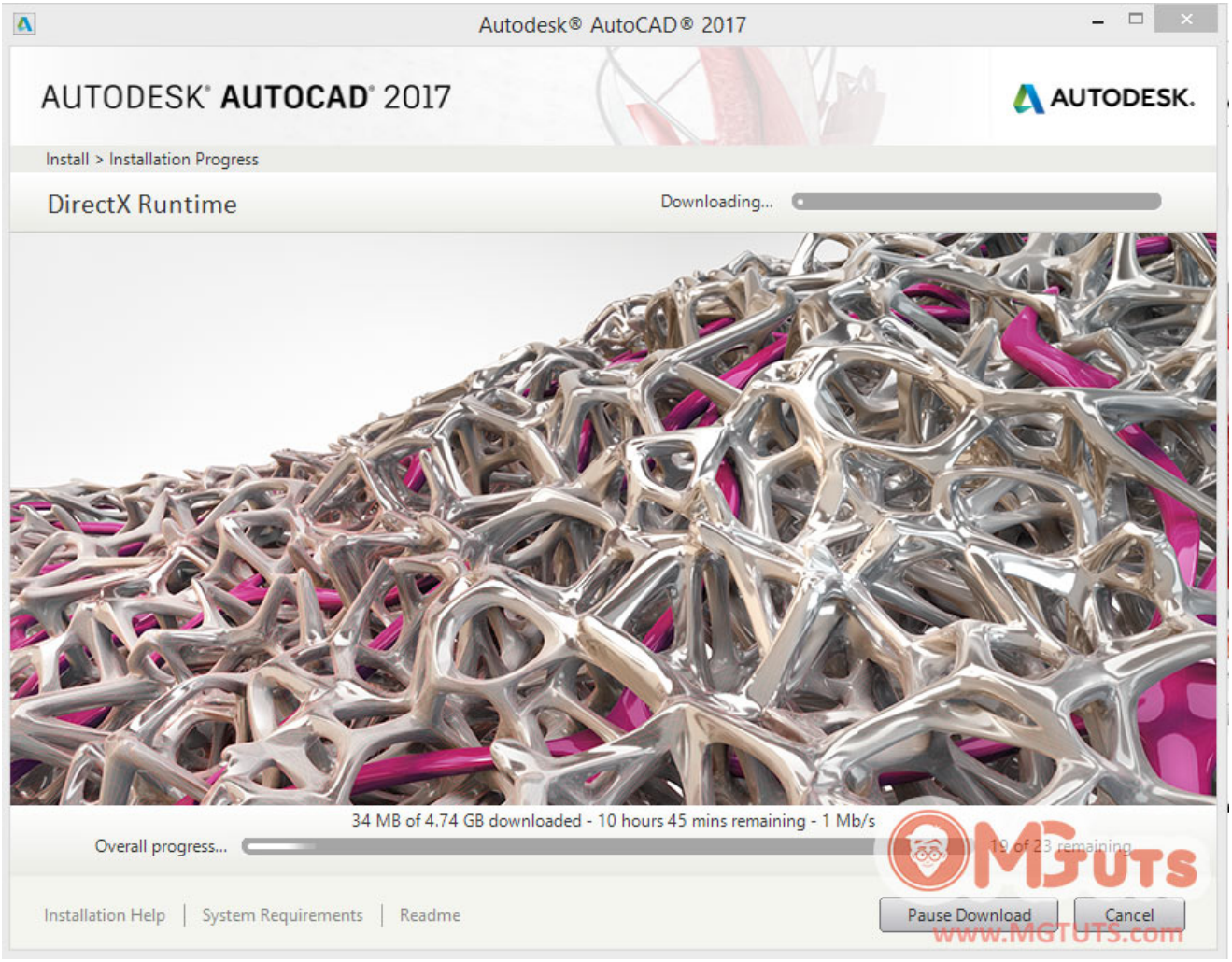
Downloading will begin. For the first installer will download special components that need install.

You need to wait until all files will download. It can take a time to download. Time will be based on your internet connection speed.

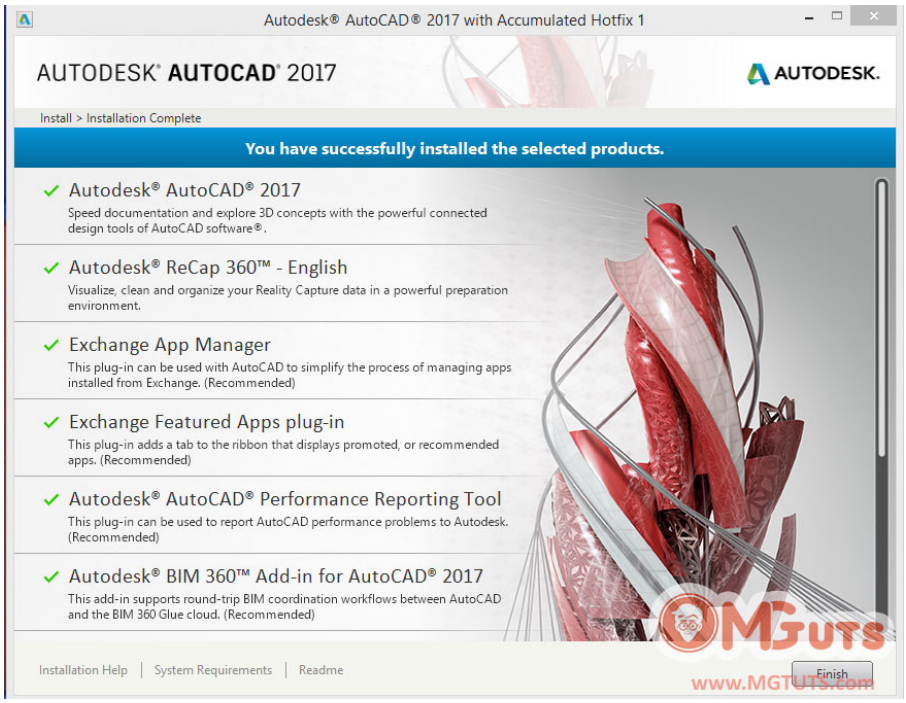
After first download will finish you will see a window like below. Here you can see installation window. You can directly install AutoCAD or install additional tools. Probably you will never need additional tools and utilities that why click on **Install** button.

Next, you will see a window where you can choose what you want to install and where you want. You can only install Autocad or you can install with Autodesk Recap 360 and A360 desktop.

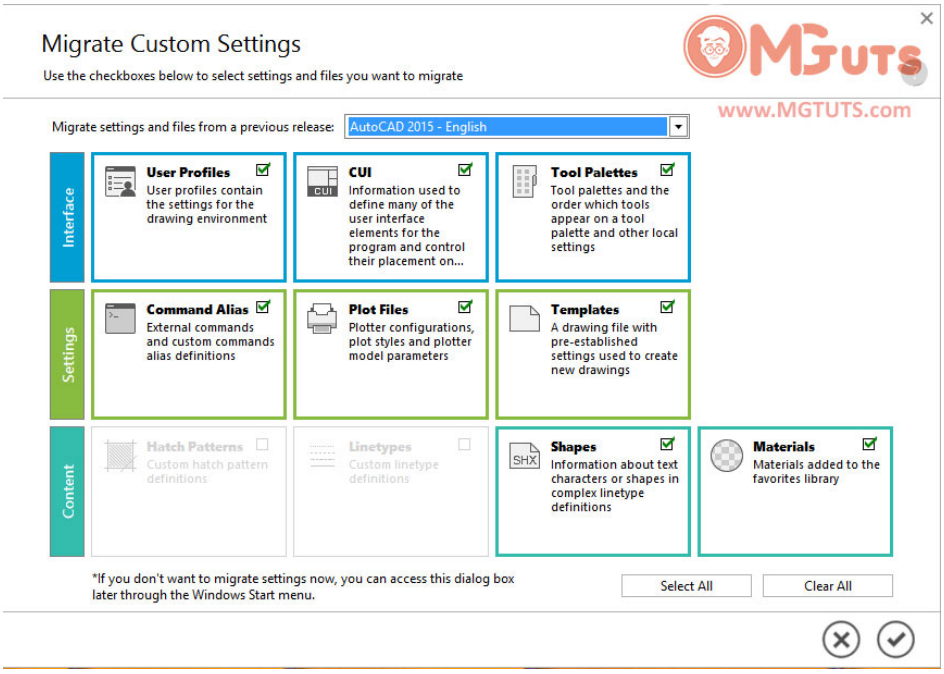
After you decided what you want just click on **Install** button. Software downloading will begin. The download can take a long time because whole software size is about 5 GB.



After download and install you will see notification window. Click on **Finish** button to end installation. Now we have installed Autocad.

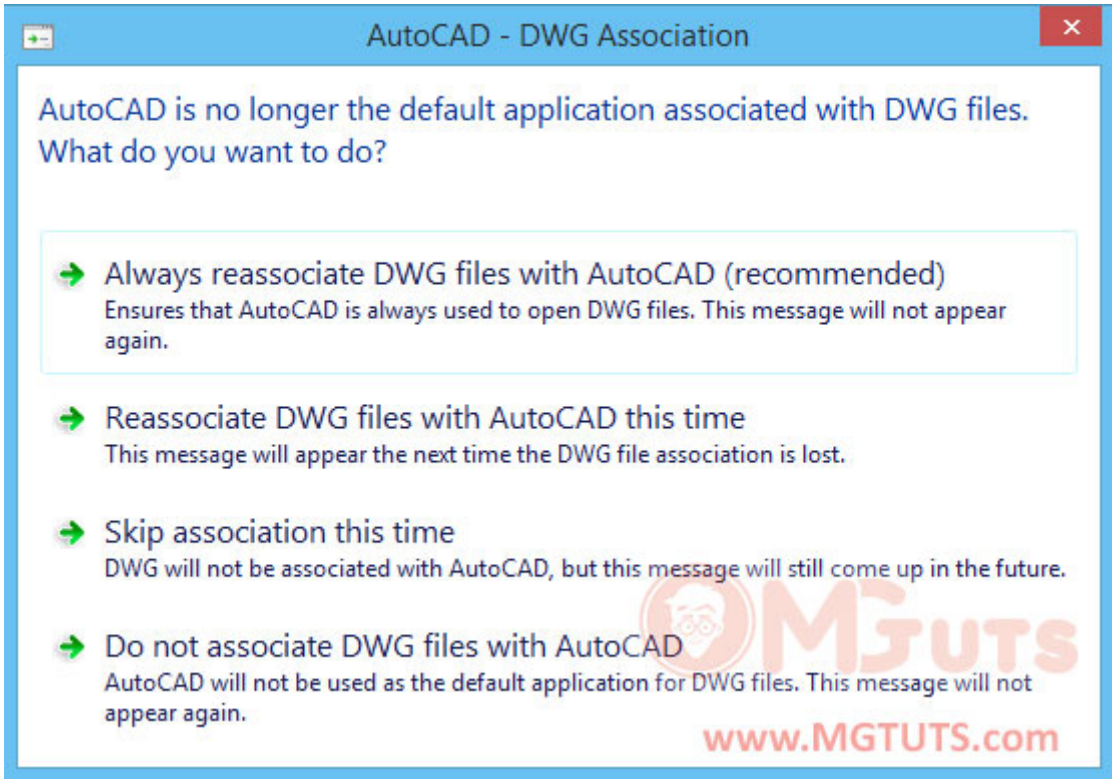

Autodesk® AutoCAD® 2017 with Accumulated Hotfix 1
AUTODESK® AUTOCAD® 2017
AUTODESK.
Install > Installation Complete
You have successfully installed the selected products.
Autodesk® AutoCAD® 2017
Speed documentation and explore 3D concepts with the powerful connected design tools of AutoCAD software®.
Autodesk® ReCap 360™ - English
Visualize, clean and organize your Reality Capture data in a powerful preparation environment.
Exchange App Manager
This plug-in can be used with AutoCAD to simplify the process of managing apps installed from Exchange. (Recommended)
Exchange Featured Apps plug-in
This plug-in adds a tab to the ribbon that displays promoted, or recommended apps. (Recommended)
Autodesk® AutoCAD® Performance Reporting Tool
This plug-in can be used to report AutoCAD performance problems to Autodesk. (Recommended)
Autodesk® BIM 360™ Add-in for AutoCAD® 2017
This add-in supports round-trip BIM coordination workflows between AutoCAD and the BIM 360 Glue cloud. (Recommended)
Installation Help
System Requirements
Readme
Finish
MGTUTS
www.MGTUTS.com

The last thing we need to do is register our Autocad. To do that open your new installed Autocad. If you have already installed old version of Autocad you will see **Migration Window**. This feature is new and only available in Autocad 2017.

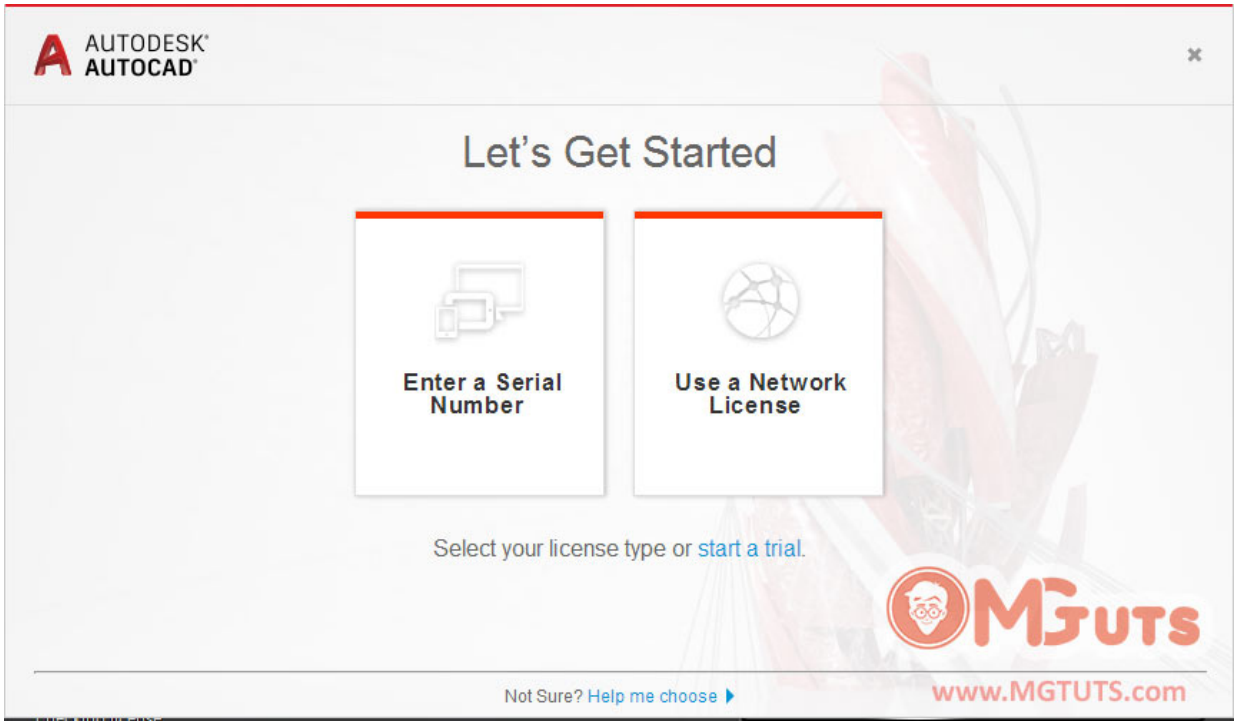

Migrate Custom Settings
Use the checkboxes below to select settings and files you want to migrate
www.MGTUTS.com
Migrate settings and files from a previous release:
AutoCAD 2015 - English
Interface
User Profiles
User profiles contain the settings for the drawing environment
CUI
Information used to define many of the user interface elements for the program and control their placement on...
Tool Palettes
Tool palettes and the order which tools appear on a tool palette and other local settings
Settings
Command Alias
External commands and custom commands alias definitions
Plot Files
Plotter configurations, plot styles and plotter model parameters
Templates
A drawing file with pre-established settings used to create new drawings
Content
Hatch Patterns
Custom hatch pattern definitions
Linetypes
Custom linetype definitions
Shapes
Information about text characters or shapes in complex linetype definitions
Materials
Materials added to the favorites library
*If you don't want to migrate settings now, you can access this dialog box later through the Windows Start menu.
Select All
Clear All

Select configurations that you want migrate and click on **Check** button.

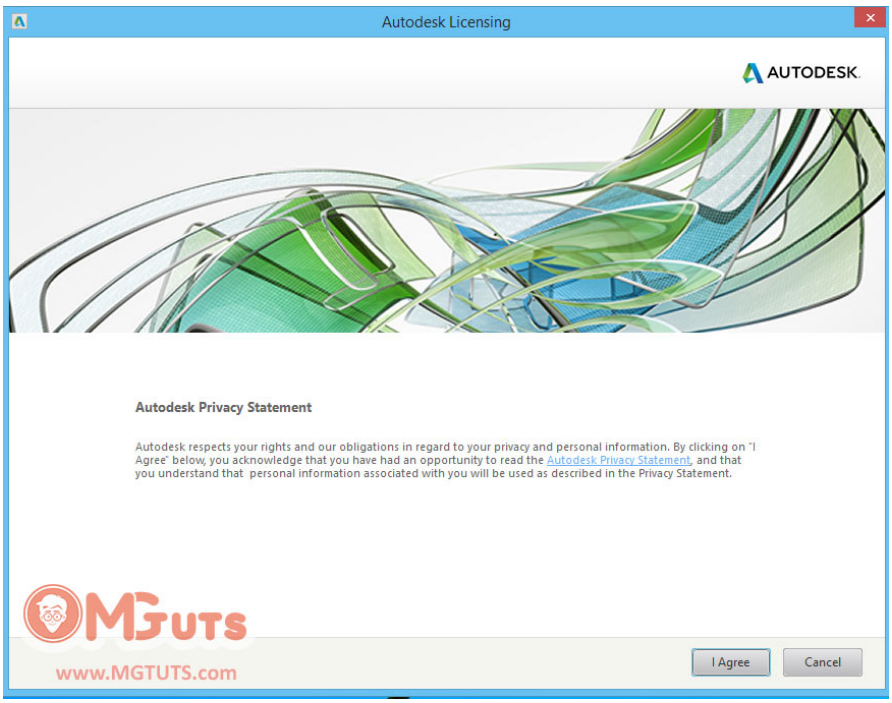
After you will see another notification window and from offered options click on first option **Always reassociate DWG files with AUTOCAD (Recommended)**


AutoCAD - DWG Association
AutoCAD is no longer the default application associated with DWG files.
What do you want to do?
Always reassociate DWG files with AutoCAD (recommended)
Ensures that AutoCAD is always used to open DWG files. This message will not appear again.
Reassociate DWG files with AutoCAD this time
This message will appear the next time the DWG file association is lost.
Skip association this time
DWG will not be associated with AutoCAD, but this message will still come up in the future.
Do not associate DWG files with AutoCAD
AutoCAD will not be used as the default application for DWG files. This message will not appear again.
www.MGTUTS.com

Now our Autocad will open and now we need to register the software. To do that click on **Enter Serial Number.**



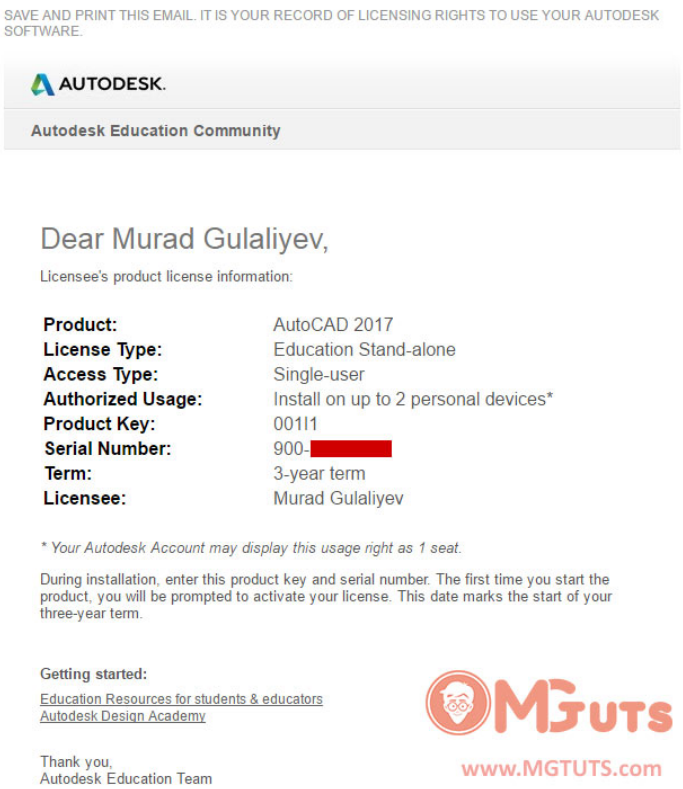
At next window just click on **Agree** to agree with **Autocad Privacy Statement.**


Autodesk Licensing
AUTODESK.
Autodesk Privacy Statement
Autodesk respects your rights and our obligations in regard to your privacy and personal information. By clicking on "I Agree" below, you acknowledge that you have had an opportunity to read the Autodesk Privacy Statement, and that you understand that personal information associated with you will be used as described in the Privacy Statement.
www.MGTUTS.com
I Agree
Cancel

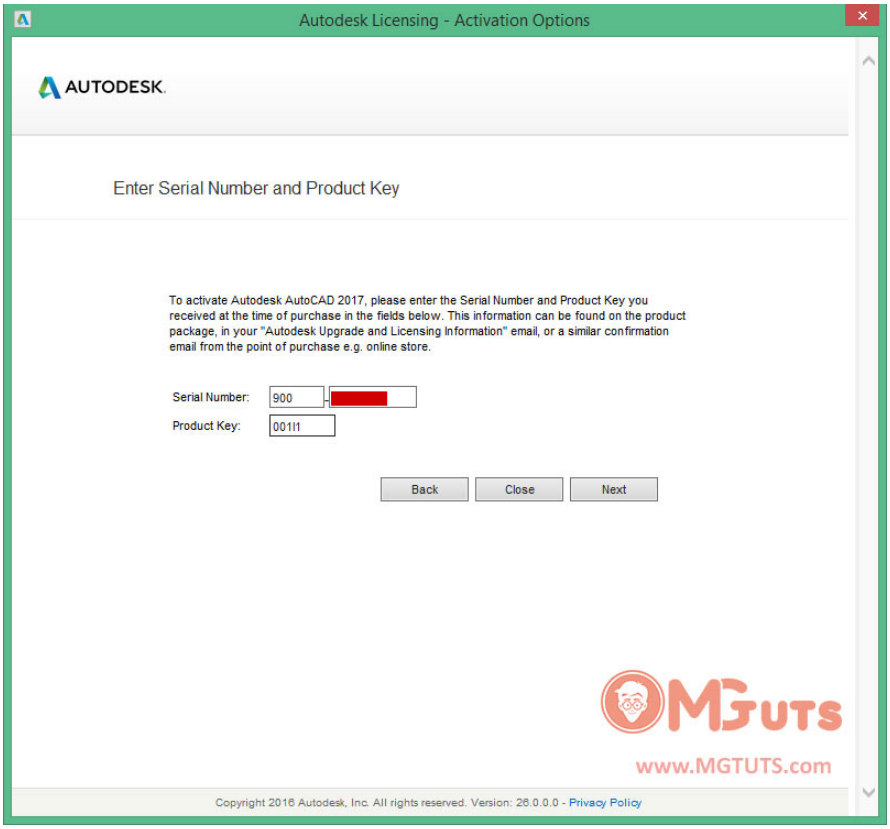
In the next window we can just run Autocad or Activate it. We can run and use it for 30 days from today. But after 30 days left we will need register Autocad. That is why let's click on **Activate** button and register our Autocad

Autodesk Licensing
AUTODESK.
Product License Activation
Welcome to Autodesk AutoCAD 2017
You can use Autodesk AutoCAD 2017 for 30 days before your license expires. After this time period, you must activate your license to continue using Autodesk AutoCAD 2017. What would you like to do?
30
Days Remaining
Run
Activate
www.MGTUTS.com
Copyright 2016 Autodesk Inc. All rights reserved. Version: 12.0.32.0. Privacy Policy

In the next window we need to enter **Serial number** and **Product key** that we get from Autodesk by email. If you haven't serial number you need register at Autodesk website.


SAVE AND PRINT THIS EMAIL. IT IS YOUR RECORD OF LICENSING RIGHTS TO USE YOUR AUTODESK SOFTWARE.
AUTODESK.
Autodesk Education Community
Dear Murad Gulaliyev,
Licensee's product license information:
Product: AutoCAD 2017
License Type: Education Stand-alone
Access Type: Single-user
Authorized Usage: Install on up to 2 personal devices*
Product Key: 001I1
Serial Number: 900-
Term: 3-year term
Licensee: Murad Gulaliyev
* Your Autodesk Account may display this usage right as 1 seat.
During installation, enter this product key and serial number. The first time you start the product, you will be prompted to activate your license. This date marks the start of your three-year term.
Getting started:
Education Resources for students & educators
Autodesk Design Academy
Thank you,
Autodesk Education Team
www.MGTUTS.com

Let's copy activation information from email and enter to activation window's fields. Click on **Next** button to activate your Autocad.


Autodesk Licensing - Activation Options
AUTODESK.
Enter Serial Number and Product Key
To activate Autodesk AutoCAD 2017, please enter the Serial Number and Product Key you received at the time of purchase in the fields below. This information can be found on the product package, in your "Autodesk Upgrade and Licensing Information" email, or a similar confirmation email from the point of purchase e.g. online store.
Serial Number:
900
Product Key:
001I1
Back
Close
Next
www.MGTUTS.com
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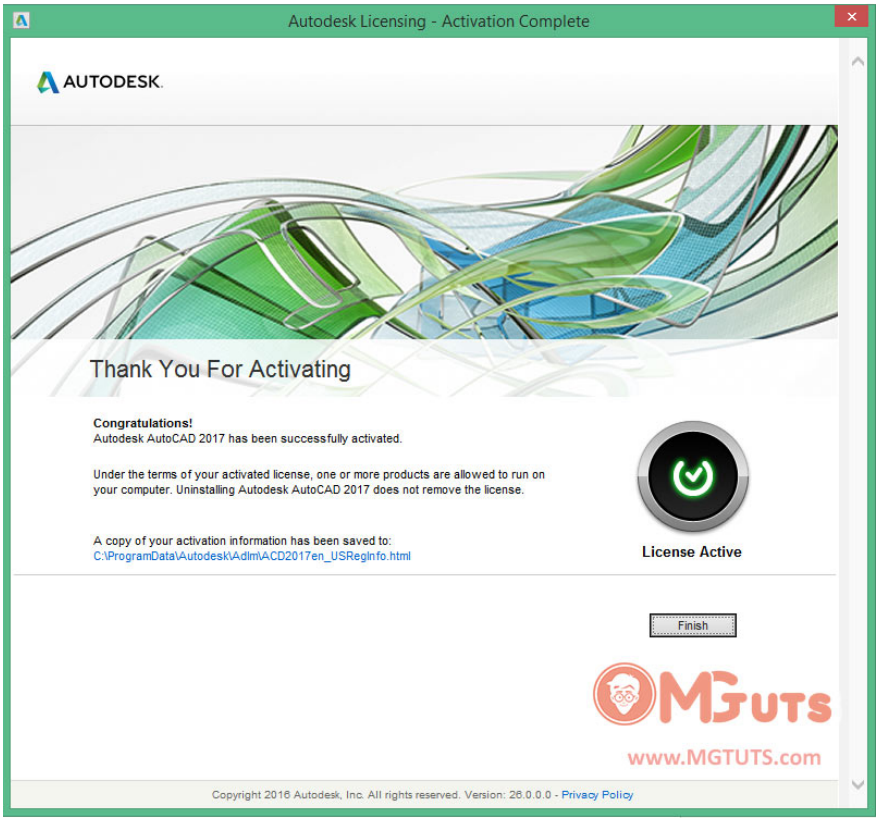
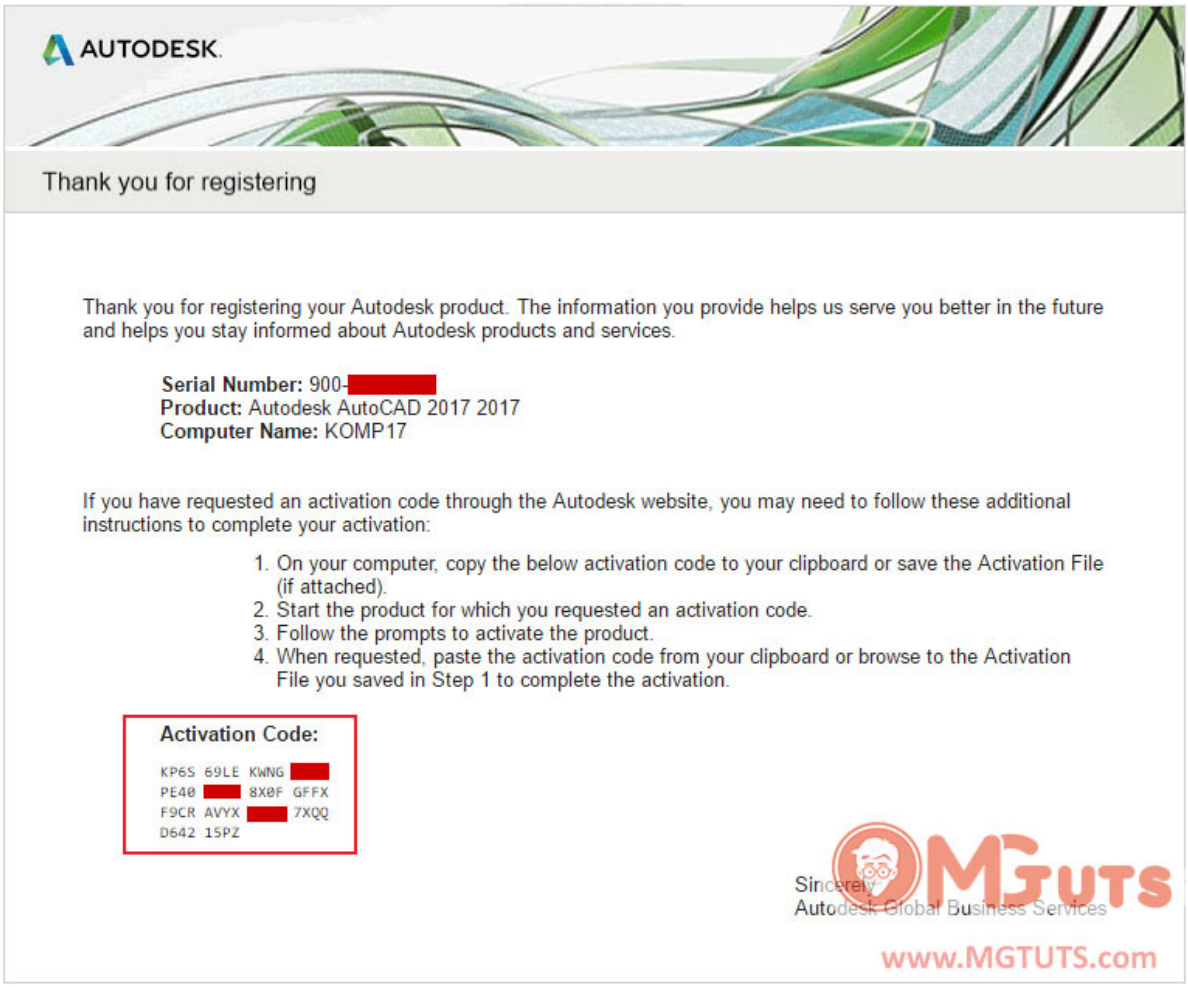
If everything right after few second you will get notification window that your **Autocad 2017** successfully activated.


Autodesk Licensing - Activation Complete
AUTODESK.
Thank You For Activating
Congratulations!
Autodesk AutoCAD 2017 has been successfully activated.
Under the terms of your activated license, one or more products are allowed to run on your computer. Uninstalling Autodesk AutoCAD 2017 does not remove the license.
A copy of your activation information has been saved to:
C:\ProgramData\Autodesk\Adlm\ACD2017en_USRegInfo.html
License Active
Finish
www.MGTUTS.com
Copyright 2016 Autodesk, Inc. All rights reserved. Version: 26.0.0.0 - Privacy Policy

Now you can work on Autocad. If you have internet connection Autocad will check your license and you will get an email with **Activation code**. When AutoCAD will ask for activation code enter code that you get from Autodesk.



AUTODESK.

Thank you for registering

Thank you for registering your Autodesk product. The information you provide helps us serve you better in the future and helps you stay informed about Autodesk products and services.

Serial Number: 900-[redacted]
Product: Autodesk AutoCAD 2017 2017
Computer Name: KOMP17

If you have requested an activation code through the Autodesk website, you may need to follow these additional instructions to complete your activation:

1. On your computer, copy the below activation code to your clipboard or save the Activation File (if attached).
2. Start the product for which you requested an activation code.
3. Follow the prompts to activate the product.
4. When requested, paste the activation code from your clipboard or browse to the Activation File you saved in Step 1 to complete the activation.

Activation Code:

KP6S 69LE KWNG [redacted]
PE40 [redacted] 8X0F GFFX
F9CR AVYX [redacted] 7XQQ
D642 15PZ

Sincerely,
Autodesk Global Business Services

MGTUTS
www.MGTUTS.com

About Autocad Interface

Until 2009 year Autocad used classic interface and from 2009 year Autocad interface changed to new Ribbon style interface. That's why there is no big difference between 2009 year and 2017 year versions of AutoCAD. You still can use classic interface just remember developers always working on Autocad and trying to make it more flexible and useable.

Which interface to choose Ribbon style or Classic interface?

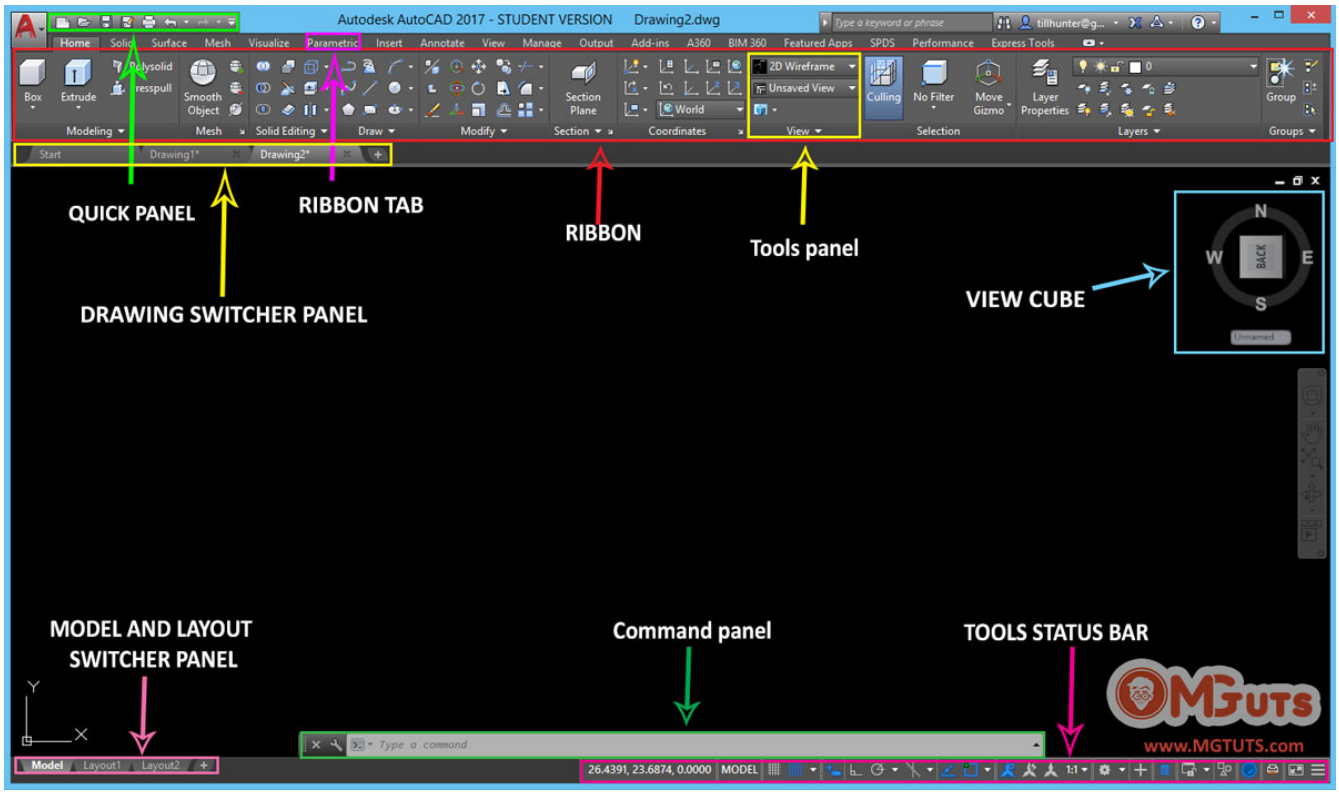
If you are already using AutoCAD with the classic interface you shouldn't install an older version of Autocad. Because you can choose which type of interface you want to use. Even you can customize the interface and change it as you wish. All interface features available on all (from 2009 version) versions of Autocad.

So if you are asking **Which version I should use?** I recommend you download and install the latest version of Autocad.

As we already install Autocad, then let's begin to learn how to work with it. The first step needs to do is get familiar with Autocad 2017 interface.

There is no big difference in Autocad 2017 interface from previous AutoCAD versions. From 2009 year version of AutoCAD interface changed to new Ribbon style. But a user who wishes to use the classic interface can easily change workspace into a classic style.

Basic elements of AutoCAD interface.



The first time when you will launch Autocad, it will load with workspace named **Drafting & Annotation.** Since 2009 year version this workspace is the default for Autocad. In this workspace, all tools collected for 2D drawing.

Also, Autocad provides several workspaces like

1. Drafting & Annotation

2. 3D Basics

3. 3D modeling

4. Autocad classic

The second and the third workspaces as you understand from their names configurated to work with 3D modeling. The fourth one is for old users who don't want to switch to the new interface. The classic interface was defaulted until 2009 year version while Ribbon style comes out.

If you are new in AutoCAD and some old users recommend you use only Classic interface because it is easy to use, don't listen to them. It is easy for them because they are a long time using classic interface. In reality new style Ribbon more useful and easy to use.

In this tutorial, we will learn how to change workspace and what workspace mean in AutoCAD.

A workspace is a place where you are working. If I would tell shot way – Interface of software. By default Autocad offering you 4 different workspace styles. The difference between them in how commands and tools sort in workspace and tools ribbon. For instance, if you are working only in 2D then you can choose **Drafting & Annotation** style because in this style all useful 2D tool placed where you can find them very fast.

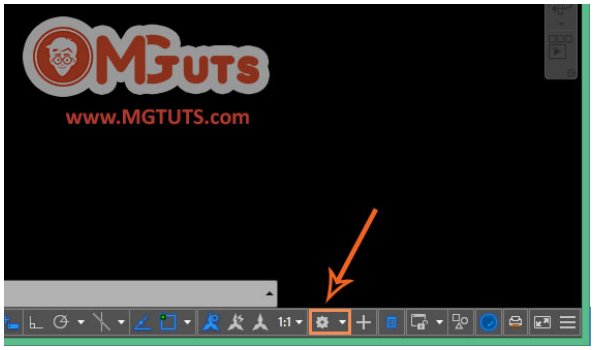
Here is which workspace style existing by default.

Drafting & Annotation – 2D drawing style

3D Basics – Only 3D drawing tools

3D modeling – 2D and 3D tools mixed

Autocad Classic – Classic interface that used until 2009 year version released.



Autocad very flexible software and if you don't like where tools located or you want to make your own workspace then you can easily change, duplicate and create a workspace as you wish.

Here we will duplicate and create a new workspace as we wish. So let's begin

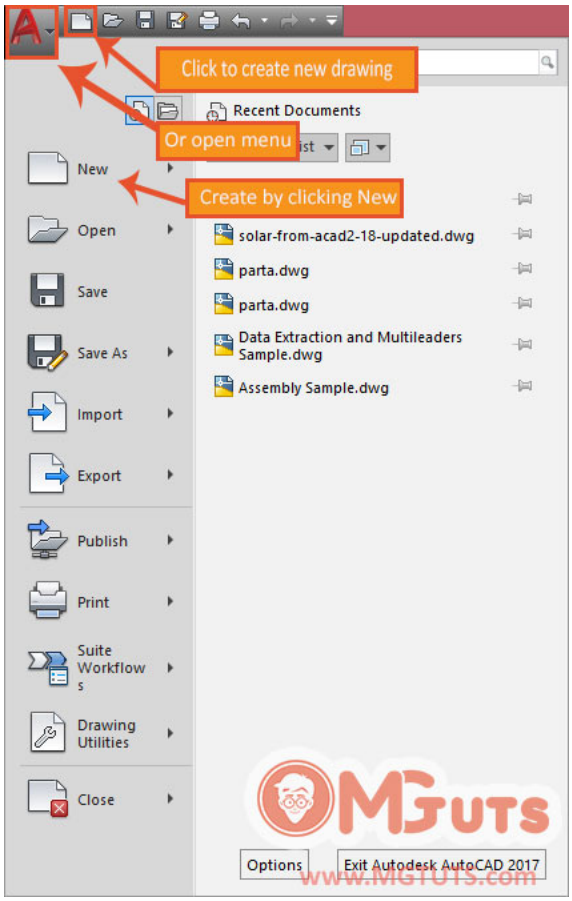
You can change Autocad standard workspaces by clicking on the tool at right bottom corner.

You will see a menu where you can change or configure workspace.

How to create new file and save it

Now let's create our first drawing document. You can create it on top left corner.

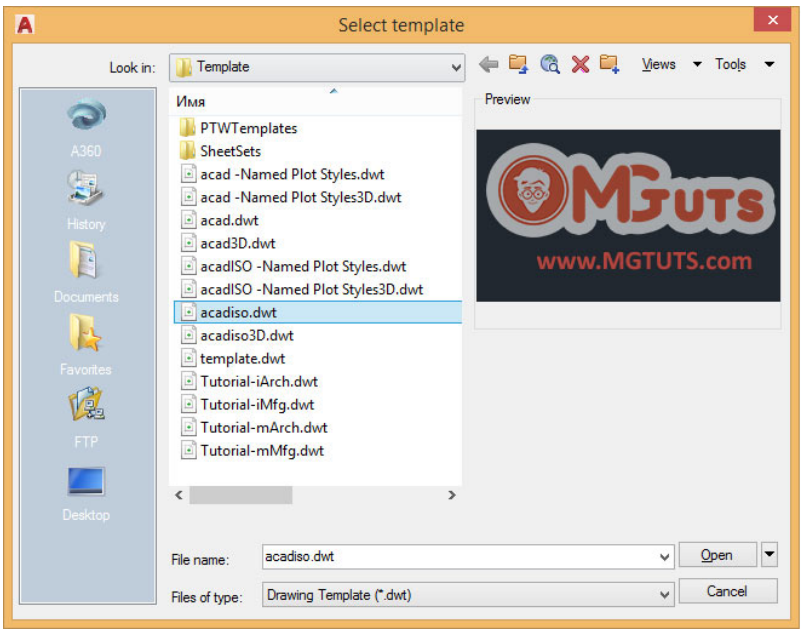
If you will click on Autocad logo icon you will see menu and from menu, you can click on **New** button to create a new document.



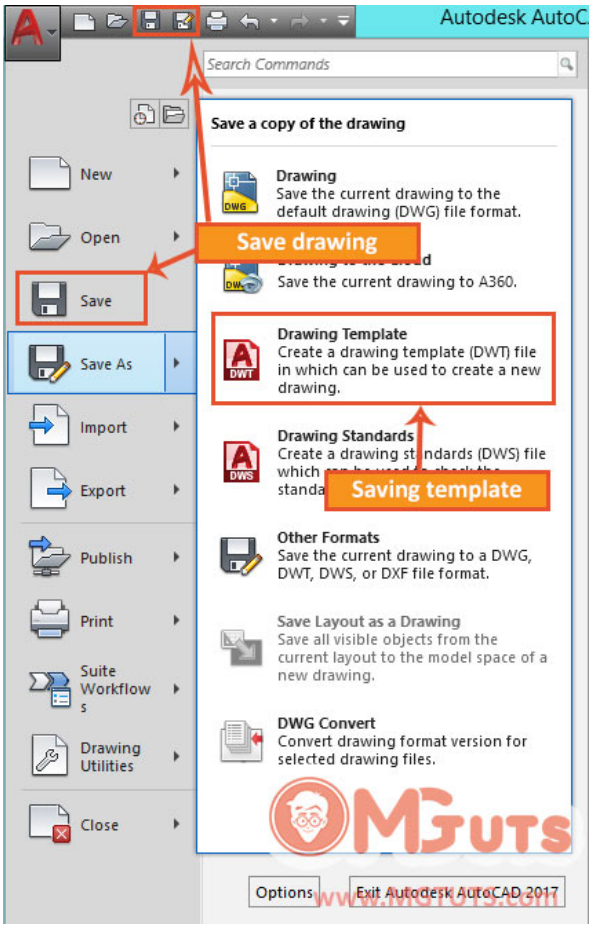
In the next step you will see window where you should choose one of the standard Autocad templates.

If you using metric system choose **ACADISO.dwt** and for inch system select **ACAD.dwt. DWT** format AutoCAD template format. Standard Autocad format is **DWG**. Any created drawing document can be saved as **DWT** template format.

You can create any count of template as you wish.



To save file, you can click on icons on **Quick panel** or open Autocad menu and save from menu.



Autocad Coordinate system

Let's little talk about Autocad coordinates system. Coordinate system one of the fundamental thing that you need to understand. The coordinate system is actual in every CAD software that's why to try to understand it.

Of course, most of the time you will not use a coordinate system. But sometimes that is very useful.

Let's begin to learn to coordinate system and we will begin from WCS (World coordinate system). The coordinate system inside Autocad similar to real World coordinates system.

WCS is a rectangular coordinate system that starts from the point with coordinates 0,0 that located in left bottom corner of Autocad. Every created object has character points with assigned coordinates. These points responsible for the position of the object in model space relative to the origin of WCS.

The defining point of primitives

Line – first point and last point

Polyline and polygons – Top

Circle, arc and spiral – center point.

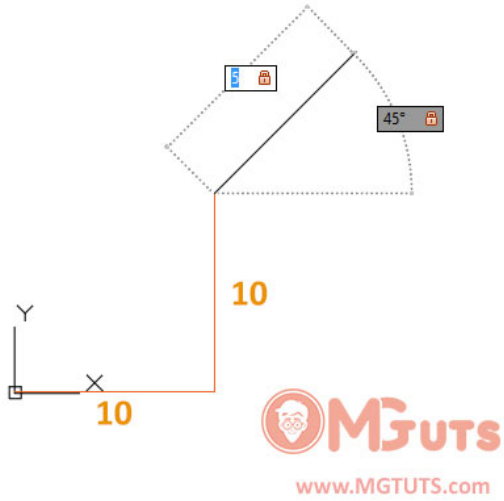
There are three ways to enter coordinates

1. Absolute coordinates
2. Relative coordinates
3. Polar coordinates

How to draw object with Absolute coordinates

To draw line with absolute coordinates we need to

1. Call **Line** command
2. Autocad will ask **Specify first point,** Enter X (10) and Y (10) coordinates after hit **Enter**.
3. After first point is specified enter line length and angle.



How relative coordinates works?

Relative coordinates take last drawn object endpoint as point 0. You need just enter @ before you will enter coordinates. Let me explain you how it works.

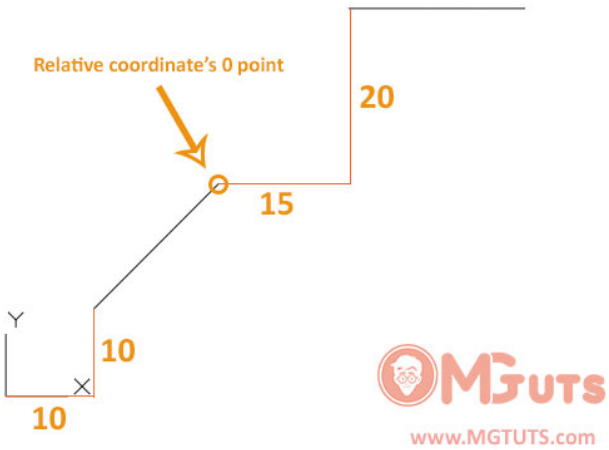
Above we draw line with absolute coordinates (10,10).

1. After we finish draw first line again call **Line** command.

2. Autocad again will ask you **Specify first point.**

3. Before you will enter coordinates enter @

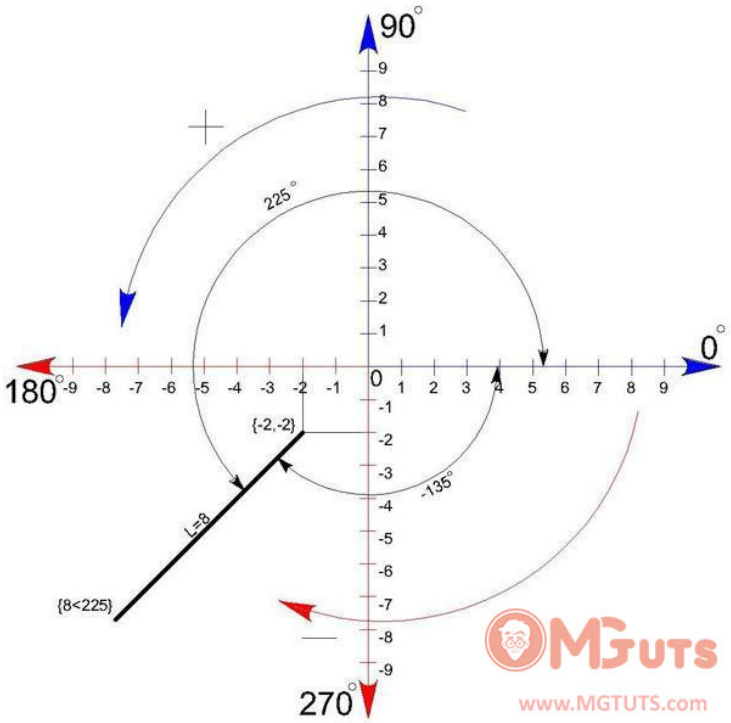
4. Then again enter X – 15 and Y – 20 and hit **Enter**.



How Autocad polar coordinates works

By default positive value of angle rolling counterclockwise, negative is clockwise. Polar coordinates can be used when we know length of line and angle that relative to the positive direction of the X-axis.

Here is an example.



In the example, you can see line with Length 8 units, 225 rotated concerning positive X axis.

Starting point built with absolute coordinates -2, -2.

After line was drawn used **8<225** parameters

What that parameter mean:

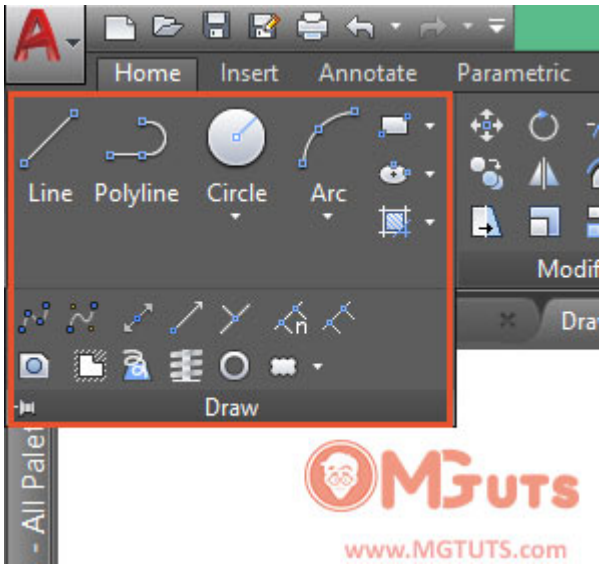
8 – line length

< - angle symbol

225 – angle which is necessary to turn the line.

Basic drawing tools

In Autocad, we can create basic geometric figures like **Line, Circle, Text** and others. These tools call primitives.



Primitives – very simple part of Autocad drawing. It is very easy to use and edit them. Most of the primitives can be found on **Home tab** of tool ribbon.

List primitives in AutoCAD

Simple	Complex	Spatial
Point	Polyline	Geometric bodies
Line	Multiline	
Circle	Multitext	
Arc	Dimensions	
Rectangle	Leader	
Ellipse	Hatch	
Spline	Raster images	
Text	Block	
Ray		

Principes of drawing objects in Autocad

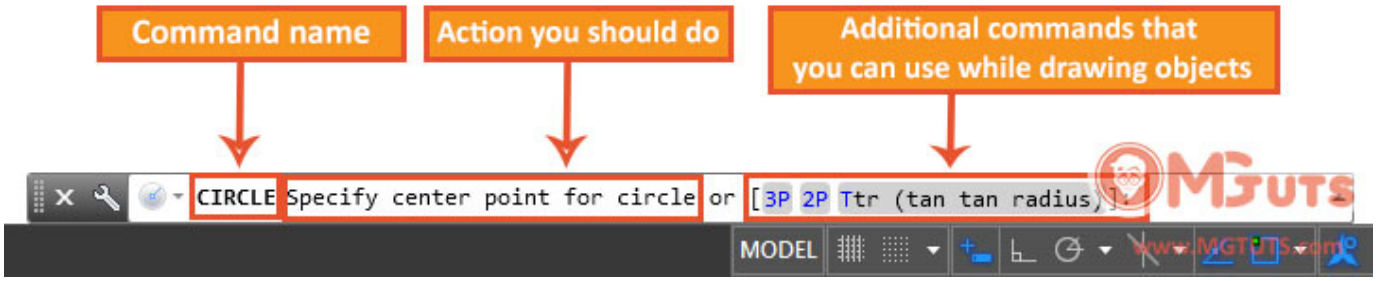
Every tool and command in Autocad can be called in two ways.

1. By clicking on its icon on tool ribbon

2. Enter command name from keyboard

After you will activate any command in command panel you will see what you should do in the next step.

Below you can see that we activate **Circle** tool and we can see that AutoCAD asking us to do

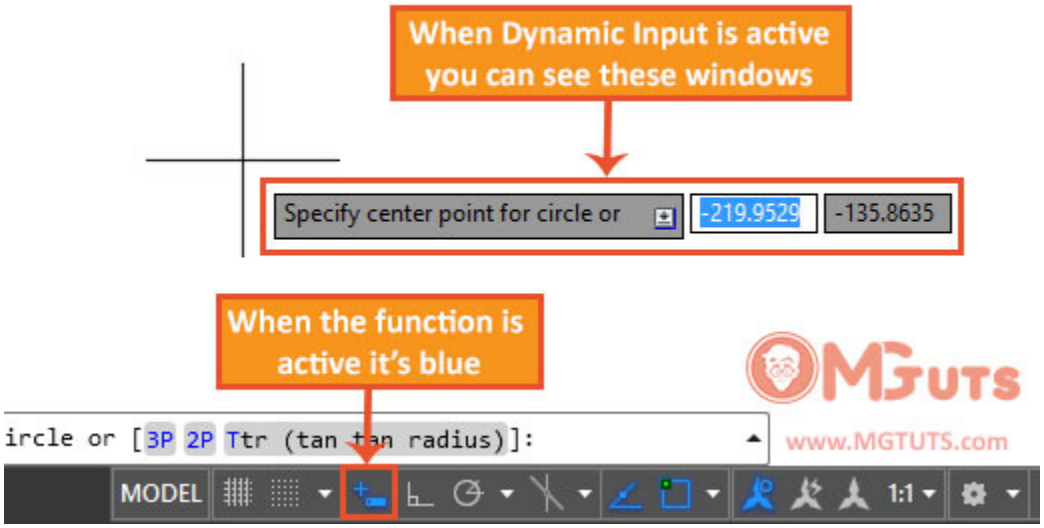

Command name
Action you should do
Additional commands that you can use while drawing objects
CIRCLE Specify center point for circle or [3P 2P Ttr (tan tan radius)]:
MODEL

The first step for all drawing tools is specifying first point. The first point can be set by coordinates or by clicking by mouse in any place on workspace.

After you will specify first point of object you will need enter dimensions of the object. As we drawing Circle, enter radius of circle.

After you will enter parameters of object hit **Enter** to finish command.

By the way, active **Dynamic Input** can make your work in AutoCAD much faster. You can find **Dynamic Input** in the tool status bar.


When Dynamic Input is active you can see these windows
Specify center point for circle or
-219.9529
-135.8635
When the function is active it's blue
ircle or [3P 2P Ttr (tan tan radius)]:
MODEL
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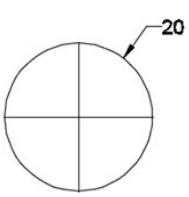
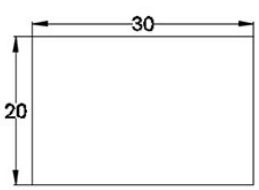
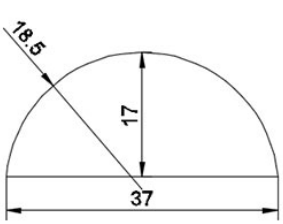
As you can see on right side of cursor has two little windows there you can enter coordinates or object parameters. To navigate between them use **TAB** button.

Now little bit practice and draw some objects with parameters like below.







For the first object you can draw using **Circle** tool.

For the second object use **Rectangle**

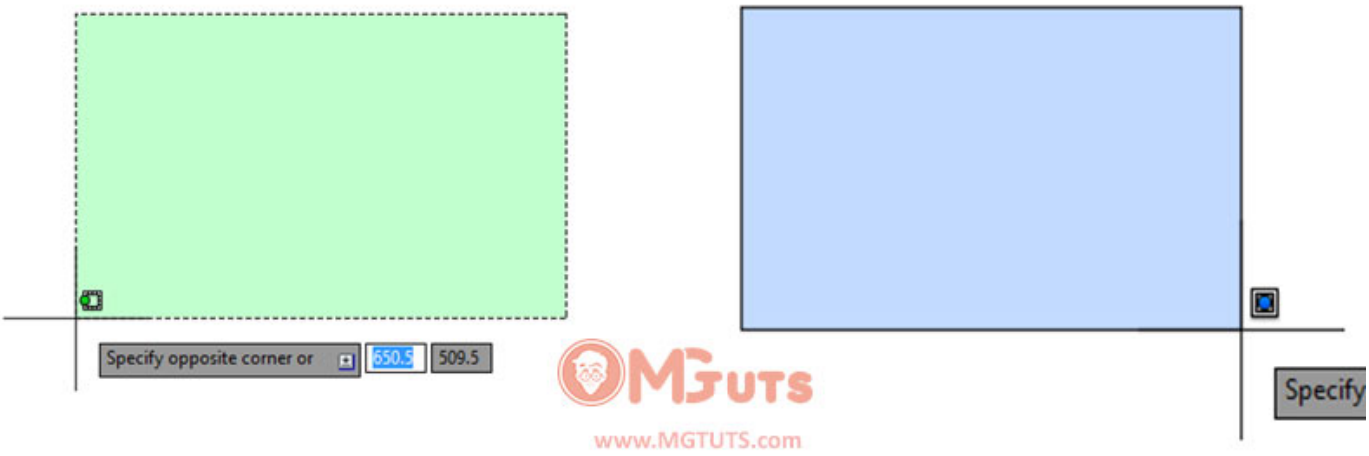
For the third object use **Line** and **Arc** tools

SELECTION tools in Autocad

In Autocad has many different ways to select an object. As in every software first selection tool is mouse cursor and in Autocad mouse cursor has several types of selection.

Ok let's see what type of selections Autocad has. I you give attention to mouse cursor when you are selecting some object you can realize that when you are moving you to left it turn into green and when you are moving to right it turn into blue. So what do they mean?

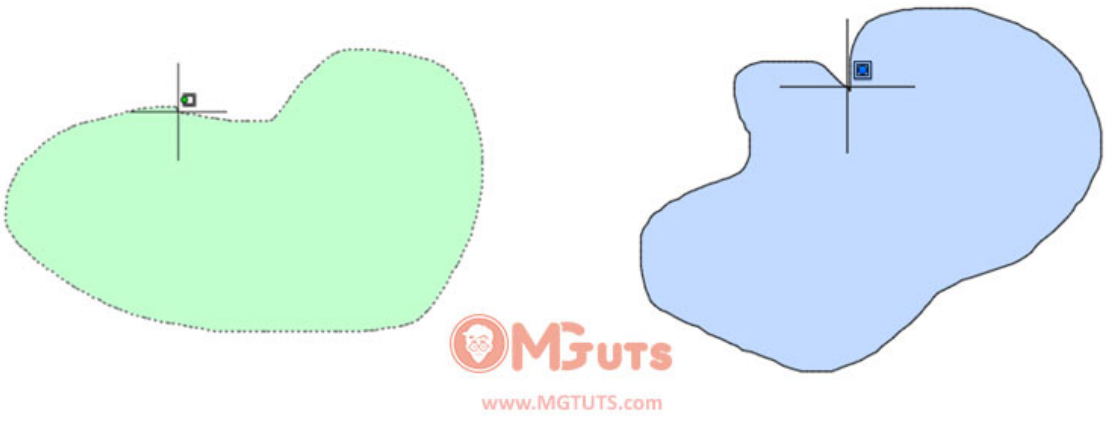
Autocad mass select



If you click one time with mouse left button and move it to left your selection rectangle will turn green and every object that will touch it will be selected.

On the opposite, if you will move your mouse cursor to right then selection boundary will turn a blue and any object that entirely will be inside of boundary will be selected.

As you can see selection boundary is a rectangle, but there has another selection method and it calls **Lasso.**



To use Lasso selection tool you need just click by your mouse button and keep it. After your selection will over just release the button.

Above you learn how to mass select object in Autocad. I want to show another selection method for single select.

Single select in Autocad

Now let's watch what we can do with single object select. You probably know that if click one object then clicks on the second object both object will be selected without any button holding. In another design software if you can select several objects then you need to keep some button like **CTRL** or **Shift.** But by default in Autocad activated option **Multi Select.**

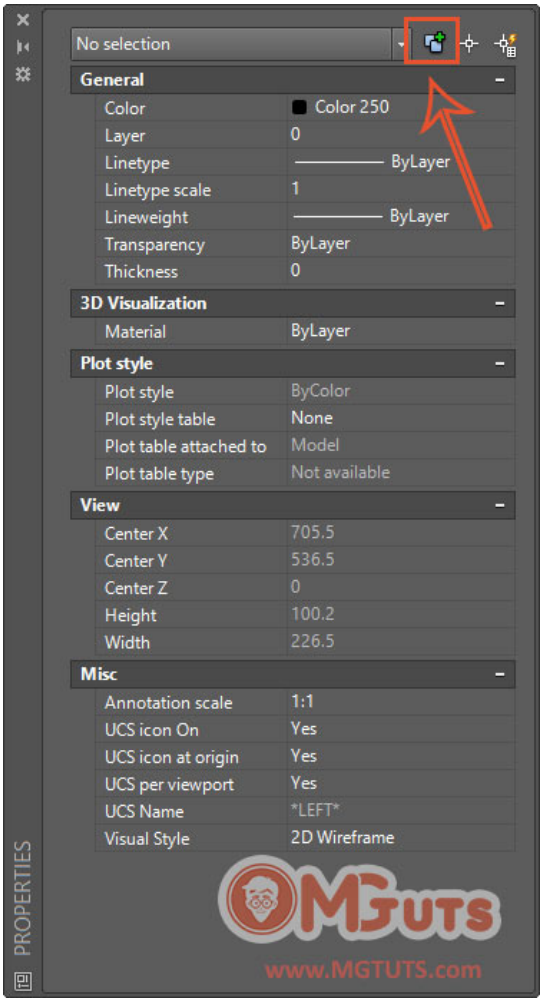
So how you can activate or deactivate Multi-select options.

If you don't want to use Multi-select and want to select all object only once then hit **CTRL+1.**

You will see **Properties** panel will open.

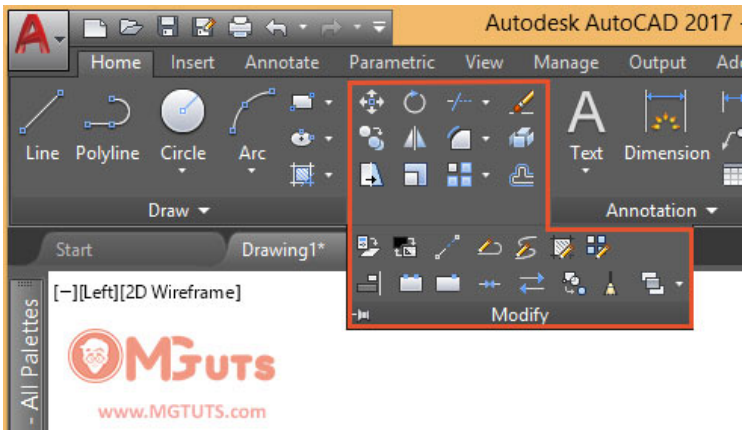
On the top side of **Properties** panel, you will see blue icon. When you will click on, icon will change.

After icon will change you will select object one by one. But if you will need several objects then you can keep **Shift** button and select multi objects.



Object modifying tools

Object editing tools group can be found in **Modify** panel.



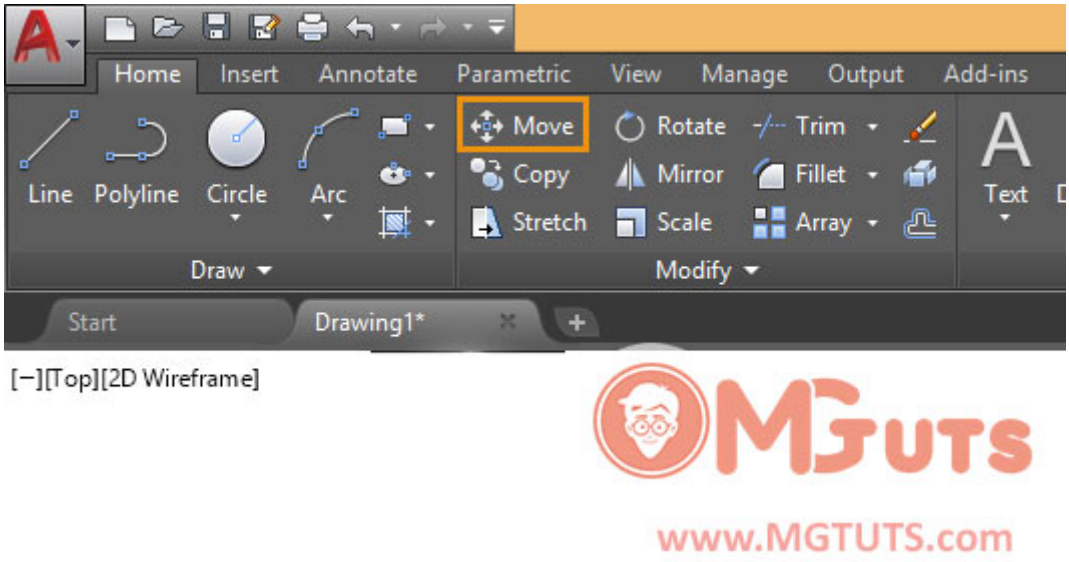
Most of the modify tools working in the same way as in drawing tools. Just give attention to command panel and follow the commands. For examples he I will show you the most used tools.

MOVE tool

Ok let's begin with **Move** command

Move is a universal command that you can use to move every object in Autocad.

You can find it on **Home** tab.



Just click on it with your mouse left button, you will see Autocad asking you **Select objects.**

After you will select the object you need to confirm that selection is ok by clicking mouse right button or enter keyboard.

Then you will ask **Specify base point or Displacement**. It means you must show point from where you want to move object. You can select any point of object or just click in any point of the workspace. Then you can move the object.

If you will choose **Displacement** by hitting **D** from the keyboard then the base point will be 0,0 coordinates of your workspace.

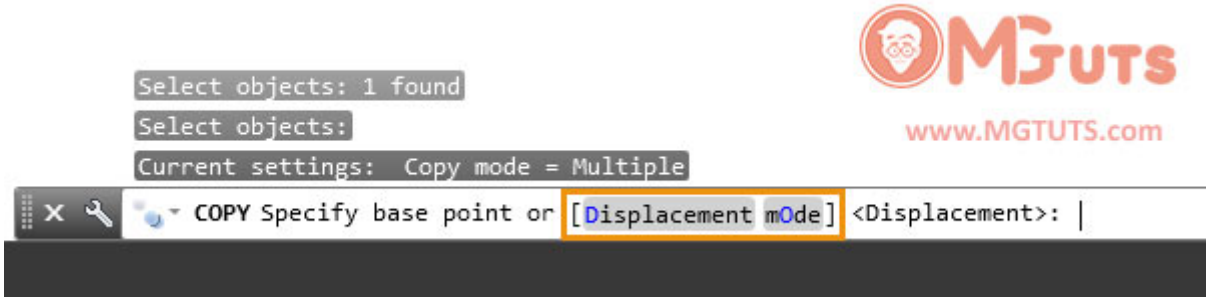
After you will move your object to the place where it should be, just clicking by mouse button to place object and finish the **Move** command.

COPY tool

Copy command can be found under **Move** command in Home tab.

After you will activate **Copy** command Autocad will ask you **Select objects.**

Click on an object that you want to copy by mouse button and click mouse right button or hit **Enter** to confirm the selection.



You will see that Autocad offering us 2 additional commands. **Displacement** we already now what it mean. The second command is **MODE** as you can see **O** letter in the word is a different color. Hit on **O** on your keyboard to activate command.

Autocad will offer you 2 options

Single

Multiply

What do these options mean?

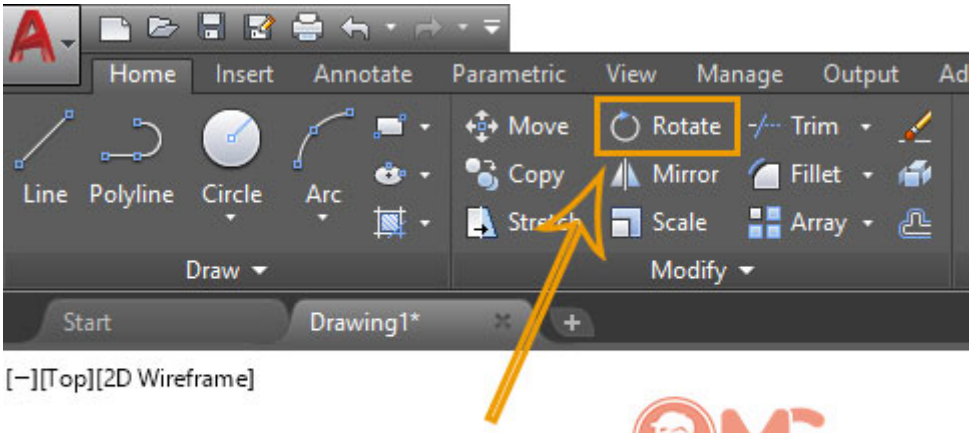
By default with **Copy** command you can choose any objects once and copy it countless number until you will cancel copy command. This calls **Multiply**.

But if you want copy once then you can switch to **Single** and copy the object only once. Then you will need call copy command again and copy the second object.

ROTATE tool

As you can understand from command name you can rotate object in 2D space. 2D because for 3D space you will need to use another command named 3D rotate.

Rotate command can be found on **HOME** tab and by entering **Rotate** from the keyboard.



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Just click on it and Autocad will ask **Select object**.

After you will select object click mouse right button or hit **Enter.**

Then you need **Specify base point** from where you want rotate object. You can select any base point of object or you can just click on any place of workspace. Of course, it will better if you will take base point on object.

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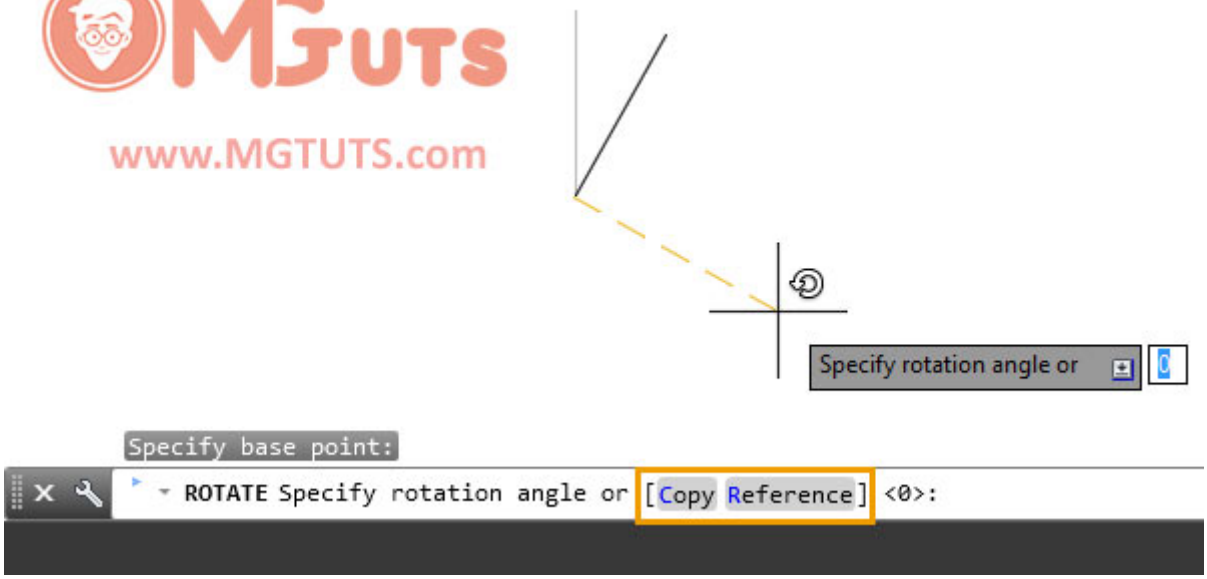


As you can see now Autocad asking us to enter rotation angle. We can just rotate it by mouse or if we want we can enter angle and hit **Enter.** Our object will be rotated to the place where you want.

If you want to rotate and create a copy of existing object from in same time you can just enter **C** from keyboard and our object will be rotated and copied.

We can see second additional command beside with **Copy** and name of that command is **Reference.** So what we can do with a **Reference**?

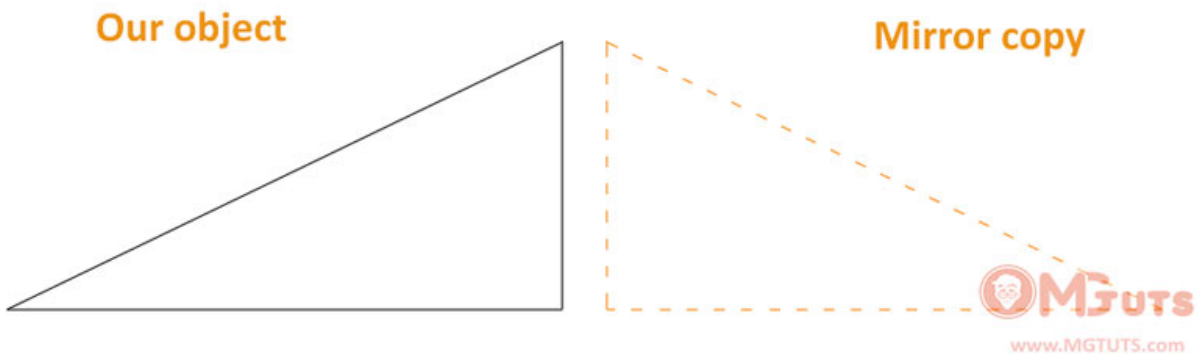
Sometimes we just need to know where is the certain angle without rotating any object. In this way, **Reference** command can help us. Just when you are using **Rotate** tool Autocad will offer you additional command use **R** button to activate **Reference** command. In the next step, you will need

enter angle that you want to know where it located and Autocad will show your angle from a base point that you chose.

MIRROR tool

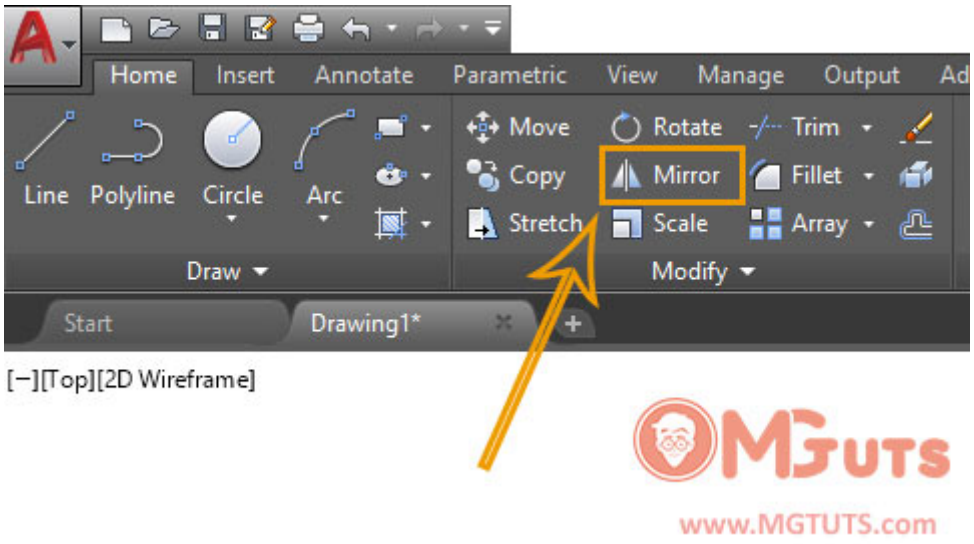
What **Mirror** tool can do? Let's see

We have some object and we want to create a mirror copy of this object.



How can we do it? You can say that we can copy this object and rotate it, but no. As you can see this object is an uneven triangle and no matter how you will rotate you will not get mirror copy of the object.

That's why we need to use special tool **Mirror.** You can see It under **Rotate** tool in **Home** tab.



1. Activate command by clicking on it. Autocad will ask you **Select objects**

2. Select object and hit **Enter** on keyboard

3. You need **Specify first point of mirror line**. Which copy you will get depend on where you will specify first point.

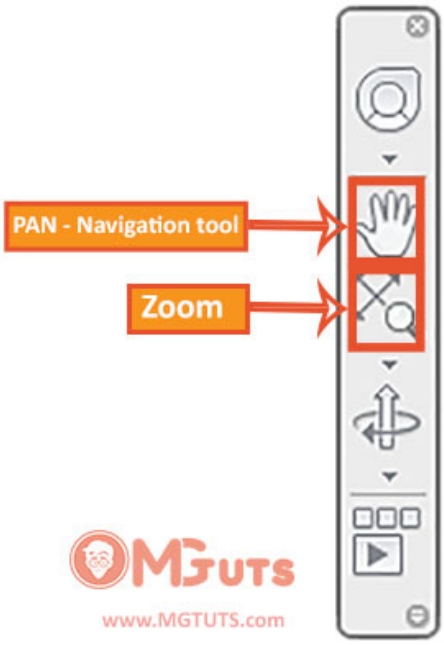
4. After you will decide where you mirror copy will be located, click on workspace to create a copy of your object.

5. At last step you will need select one of the two options. Erase original object or no. To finish command enter from your keyboard **Y** or **N** and hit enter.

As you can see using AutoCAD is a very intuitive process. Try to use other modify tools.

Workspace navigation and Zoom

As you already know how to draw and modify objects, let's little bit talk about navigation in drawing process. Navigation and Zoom one of the most used tools, because if your project is big then you must navigate between objects to view them and modify them easily.



There two ways to use navigation and zoom tools.

The first is navigation bar that you can find on the right side of Autocad.

If you are using **Drafting & Annotation** workspace you will not see navigation bar. But you can activate it by entering **NAVBARDISPLAY** into command panel.

Just click on icon and you will see that your mouse cursor will change.

The second way is the use middle button (roller) of your mouse.

1. If you want a zoom then just roll the roller.

2. If you want navigate then push roller and keep it.

3. There is had the third function on the roller. If you want center whole drawing then you can double click on the roller.

Ensuring accuracy and Snap

Autocad provides a wide range of tools that can help you correct your accuracy and make your drawing much easier.

Here are some of most used tools:

Polar tracking – Snapping to the nearest angle that set in the configuration.

Object tracking – Snapping to objects point that **Object snap** and show dashed line that gives you ability draw easily

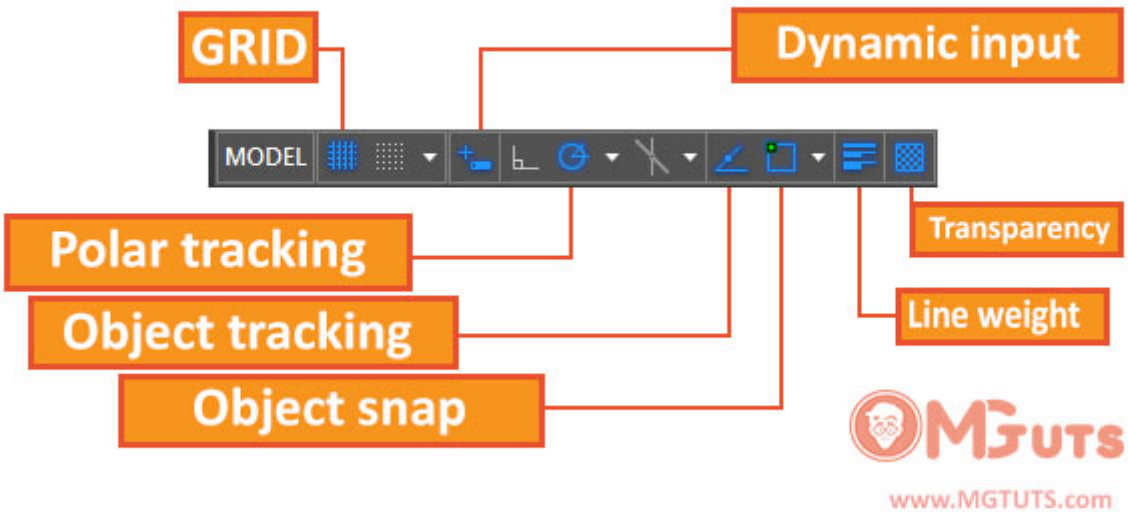
Object snap – Snapping to object.

Dynamic Input – Help you enter object parameters while you are drawing.

And others

Now let's see how the most helping tools work.

Most used help commands



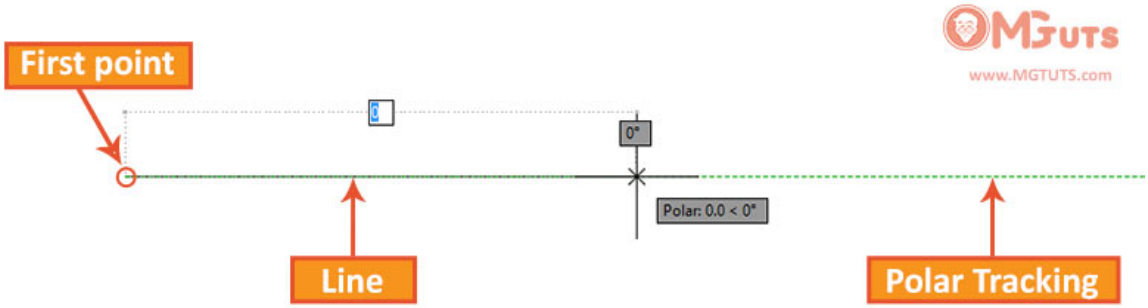
POLAR TRACKING

Let's see how Polar tracking working.

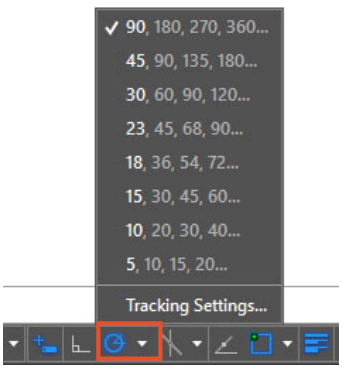
1. First of all, activate Polar tracking.

2. Now activate **Line** tool by clicking on tools ribbon or enter tool name into command panel.

3. Then move your mouse cursor in 90® directions. You will see green dashed line. That is **Polar tracking.**

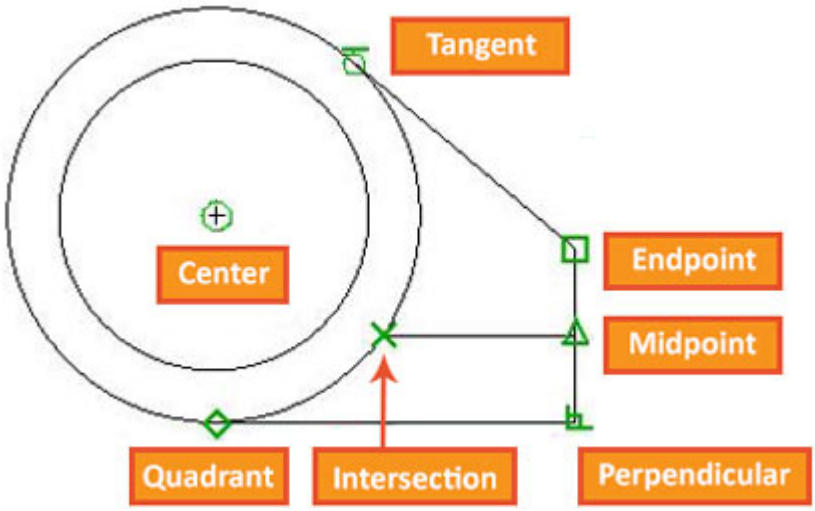


By default polar tracking working in degrees 0 – 90. You can change degrees by clicking on little arrow beside **Polar tracking** icon.



Object snap

One of most useful helping tools in the drawing is **Object snap**. Object snap can snap to a different part of the object. There are many different ways how this tool can snap to object. Below you can see snap that using frequently.



Object snap begins work when you are drawing.

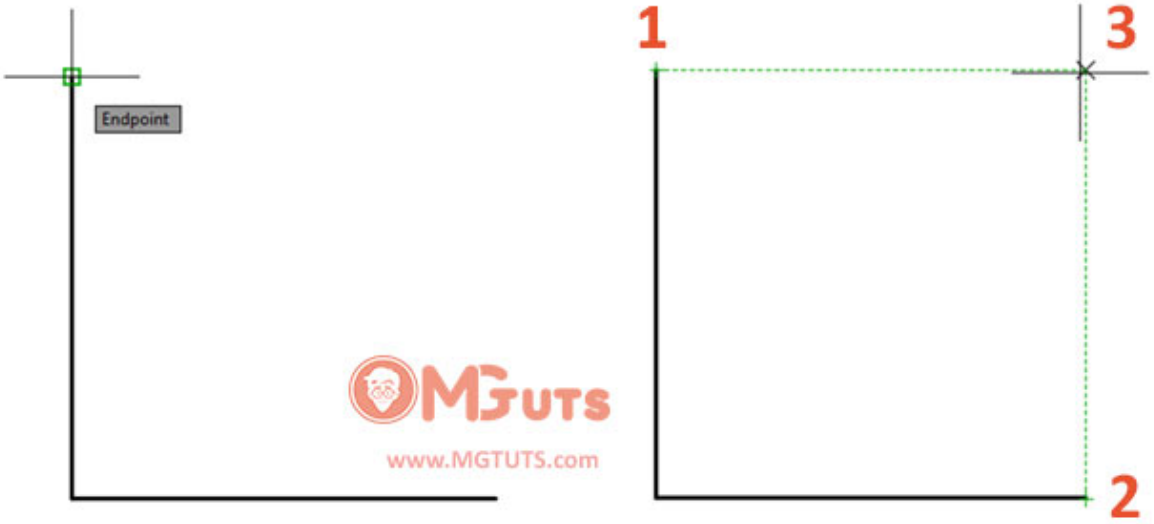
For first draw any object, it can be a line or rectangle or any other object. Then activate some of drawing tool and move your mouse cursor on already drawn object. Based on which snap method activated you will green icons on object. That icon shows you where our cursor will snap.

Object tracking

Object tracking is another useful tool that can help you draw much faster and can make you work more easier. So how the **Object Tracking** working?

Object tracking works with **Object Snap** in a pair**.**

For examples let's draw two perpendicular line. Now we need draw circle in point 3. So how we can do it?



1. Activate **Circle** tool and move your mouse cursor to position 1. When you will see that cursor snap to object endpoint, keep your mouse cursor in that position for a couple of seconds.

2. After few seconds move your mouse to position **3.** Move your mouse to the same position as position **1.** You will see that when you are in same position there green dashed line.

3. Now move the cursor to position **2** and keep on snap point for a few second. Then move your cursor to position **3.**

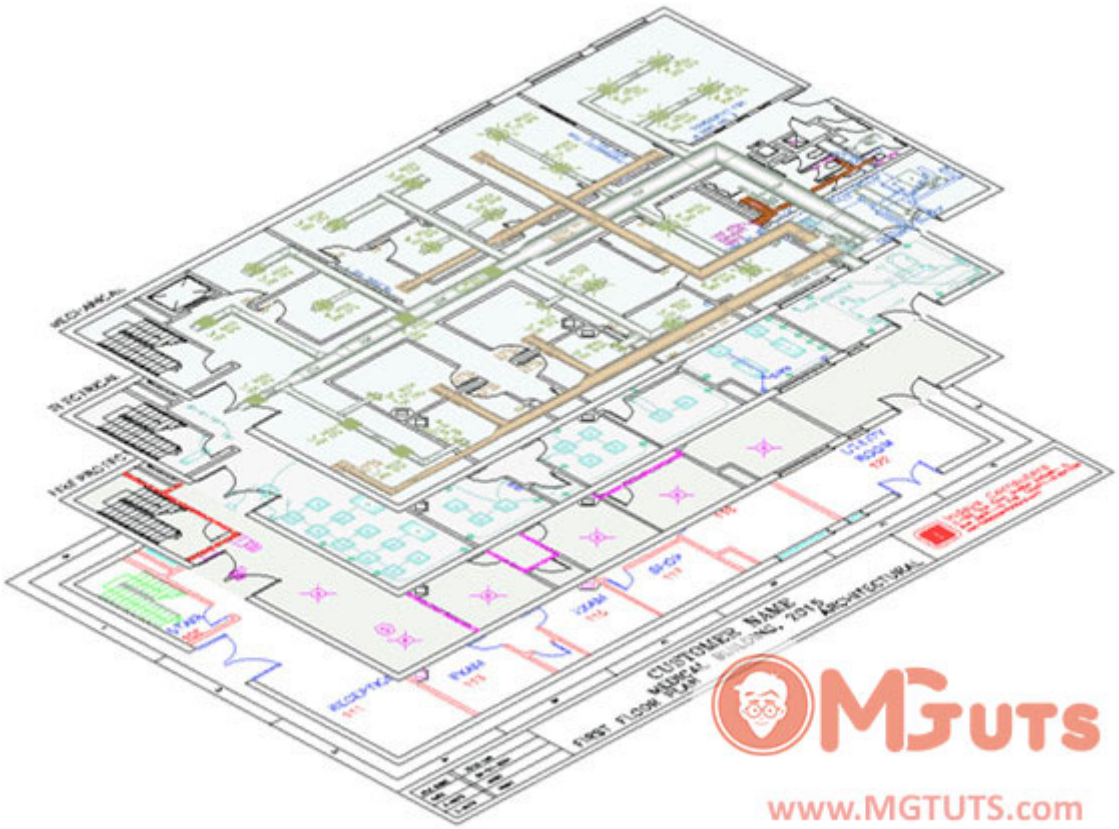
On position 3 you will see when positions 1 and 2 will intersect you can create your circle.

As you can see these helping tools can make your work more easier.

What is the Layers

Very often when you are working with the project you need to change object color, line type or line weight and etc. If you are working on a big project that is had too many objects then change every object one by one is not a good idea. For productive and effective work in AutoCAD have **Layers.** So that's why let's see what is the layers and what you can do with them.

Every layer in Autocad like a transparent sheet of paper that contains drawn objects. When layers lay on each other you will get whole drawing. Here is better example in illustration



There is no any limitation in layer count, you can create any count of the layer as you wish.

In Autocad users can manage layers with **Layer Manager.** Here is some operation that you can do with **Layer Manager.**

For every layer in Autocad you can give a personal name.

For every layer you can give line color, weight and type.

Every layer can be visible or invisible

For every layer you can set personal print configuration.

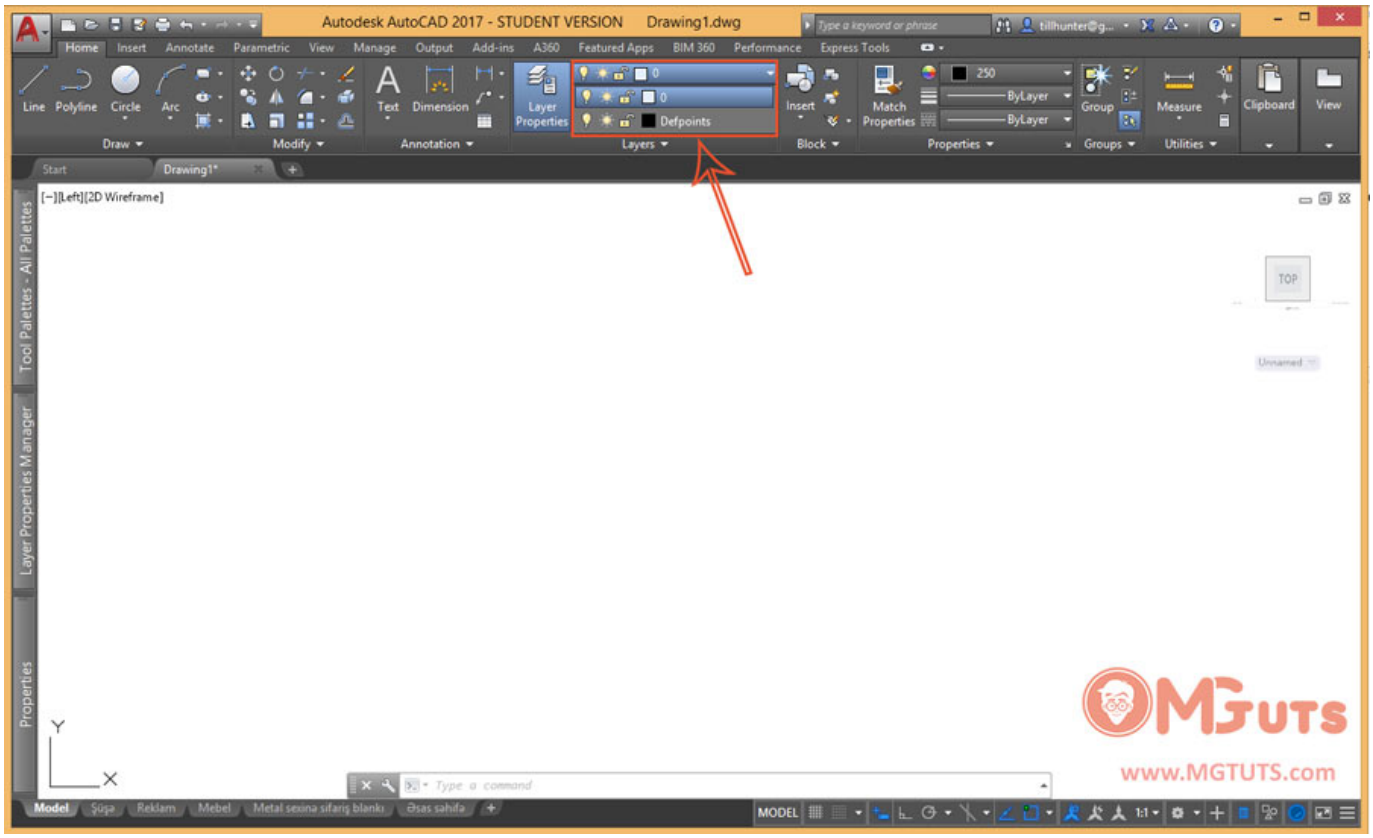
And much more.

In this way, you get big advantages in Autocad. You can group different type objects into separate layers. That will make your project clearer and you can work more productive.

Layers will make you much faster as if you create a layer and make some changes in layer properties (Color, line weight and etc.) every object that will be added to this layer automatically will get those parameters.

Where can I find layer manager?

You can find **Layer manager** in **Home** tab.



In newly created drawing had created layers

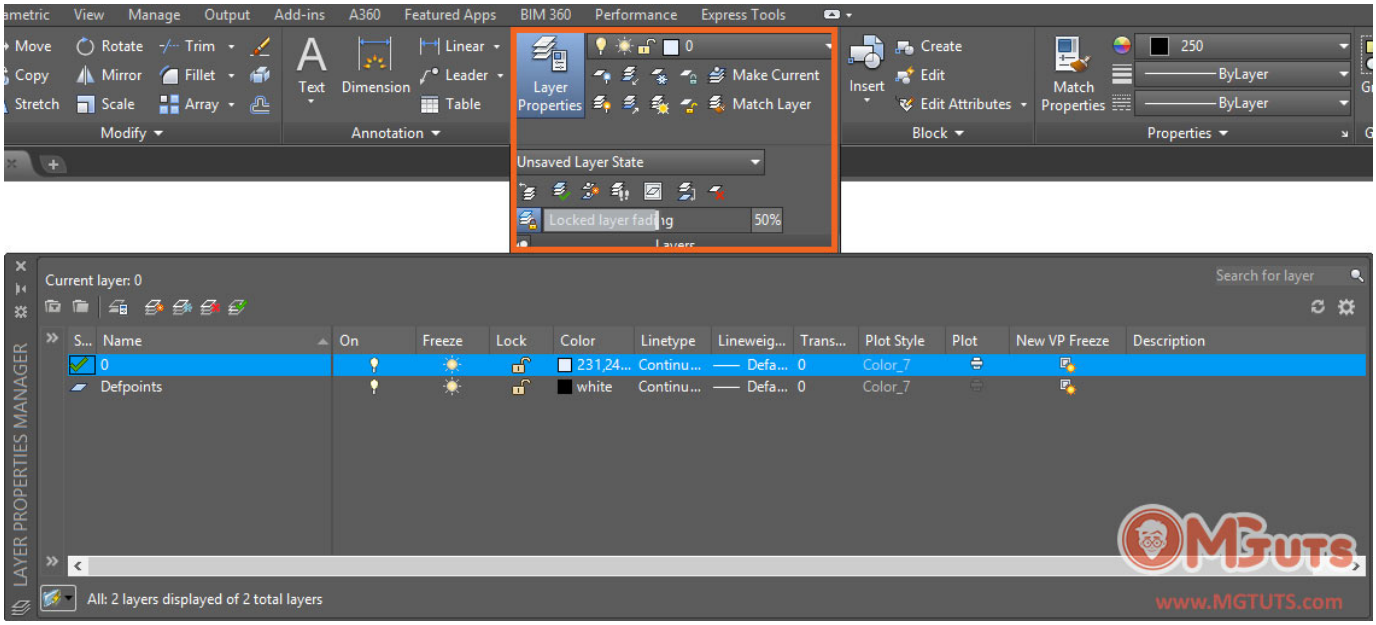
What is the 0 (Zero) layer

Every time when you creating a new drawing in **Layer Manager** you can see Layer with name **0.** Every created object by default adding to this layer. This layer impossible to delete and also you can't rename it. Every other layer easily can be created, renamed and deleted.

What is the Defpoints

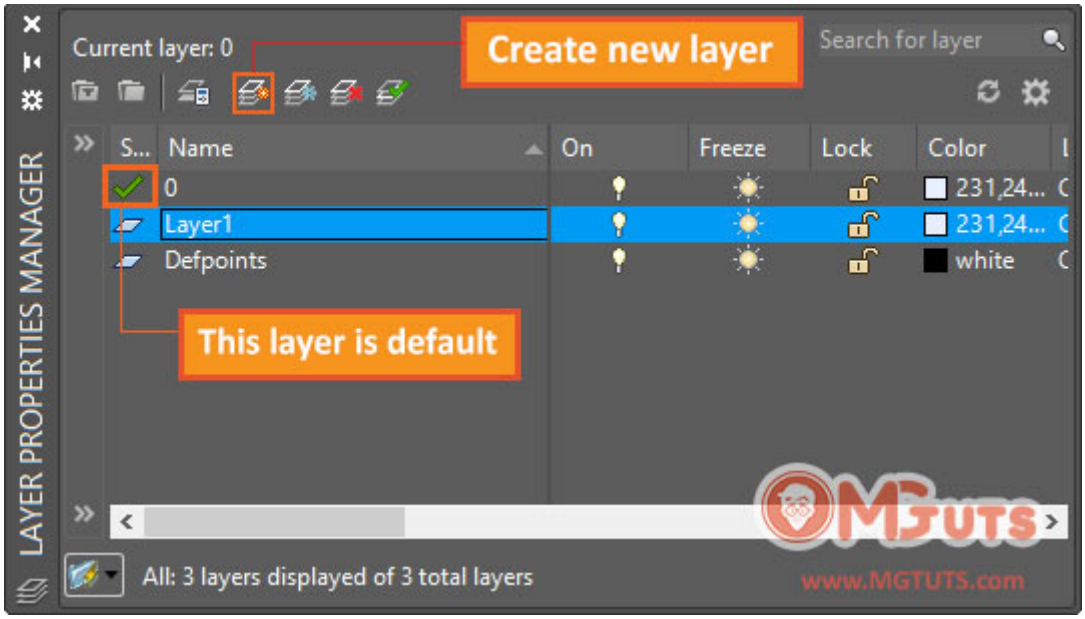
Second default layer is **Defpoints.** This layer intended for Dimensions and will be created automatically when you will create dimensions. This layer also can't be deleted or renamed. While you are working just don't give attention to this layer.

Layer panel can be found on **Home** tab and also you can make visible **Layer manager** by entering **Layers** into command panel.



How to create new layer and rename it

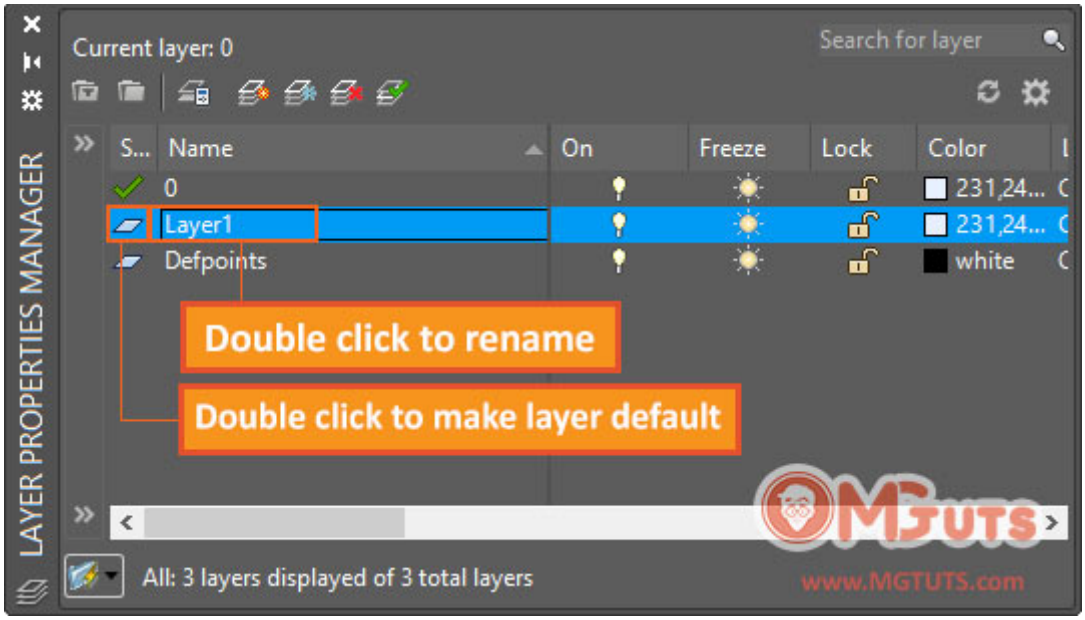
Now let's create some layer and to do that we need open **Layer manager** and click on **Create new layer** button. You can give name immediately to every newly created layer.



If you didn't give a name from beginning Autocad automatically will give name Layer1 and etc.

You can easily rename a layer, then you can double-click on the layer name and rename it.

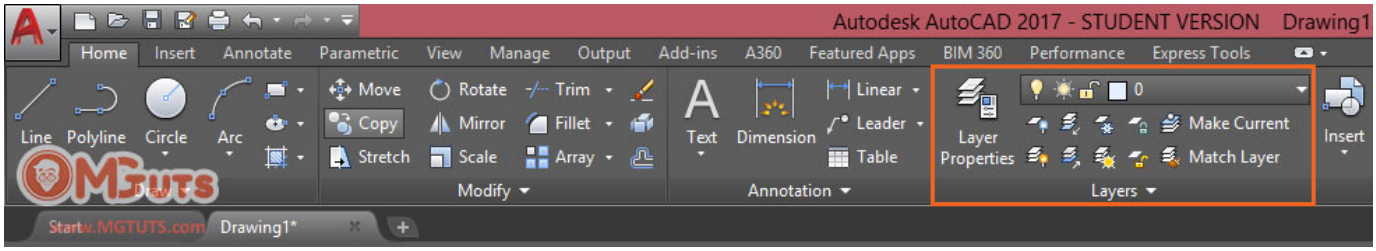
Take attention to where you are clicking, because if you will click on icon of layer then you will make that layer default. Every newly created layer will be added to this layer.



How to add object to certain layer

As we already know how to create and rename layer let's create some object and add it to created layer.

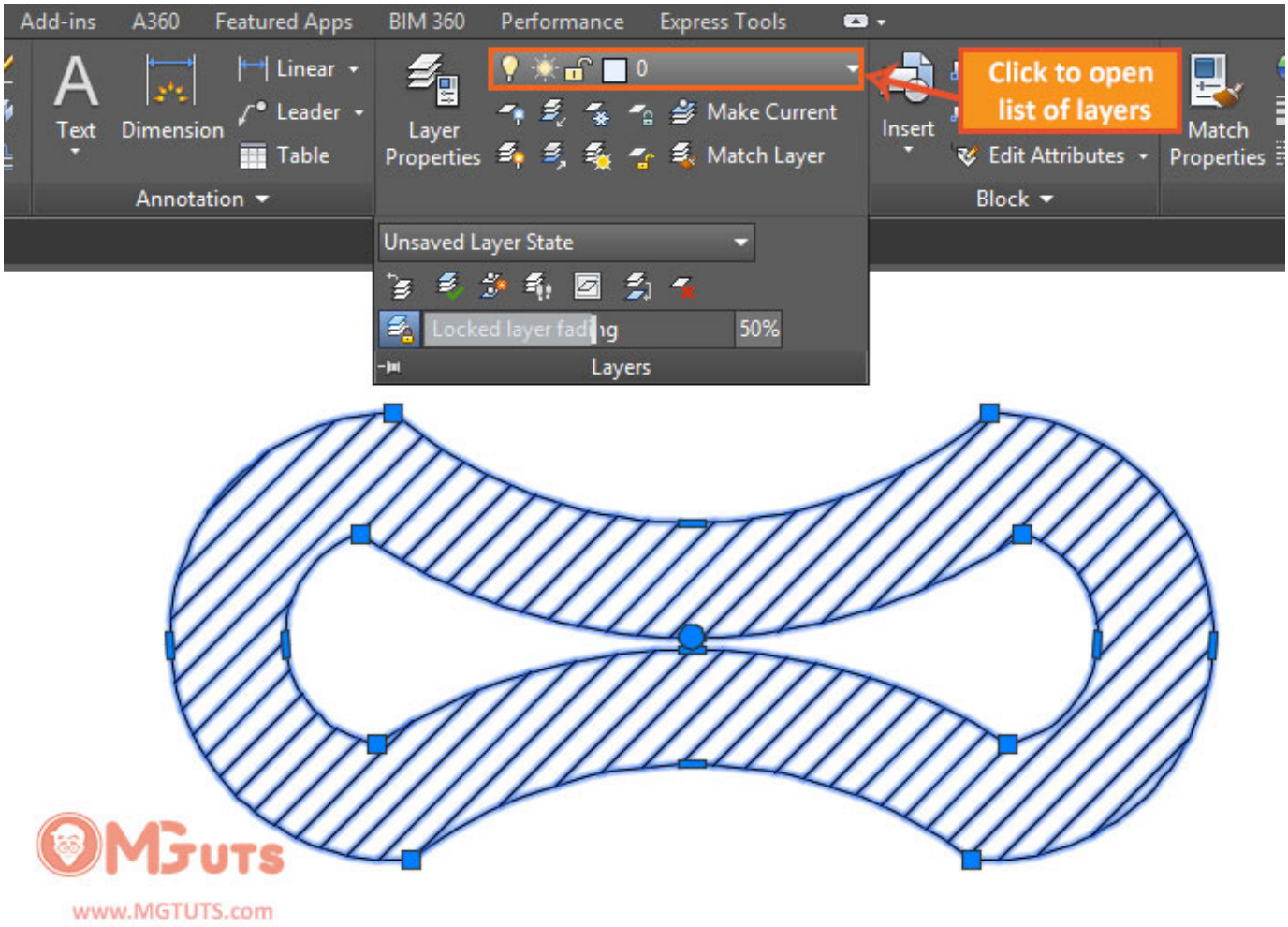
You can find **Layer** panel in **Home** tab.



Now let's create some object and try to add it to some of the created layers. As you know all newly created layer adding into default layer and now default layer is **0**.

First of all select object that you want to add to another layer.

Then click on layer list and you will see list of layer



Choose layer from list and click on it. Now selected object will be in that layer.

What is the Blocks?

Blocks are another useful tool in Autocad. Blocks are a group of primitives that combined and working as a single entity. Combining object into blocks makes easy to use them and reuse them inside drawing and not only.

Blocks are not Group. In AutoCAD has also groups but they work very differently.

Blocks are big theme and here we will not get in deep into this theme. But to understand what is the blocks I will show you default blocks that built in Autocad.

To see built-in blocks we need open **Tools Palettes.** Enter **toolpalettes** into command panel.

You will see this windows, where you can find all Autocad blocks. If you will give attention to the right side of the window you can see tabs from where you can switch between categories.

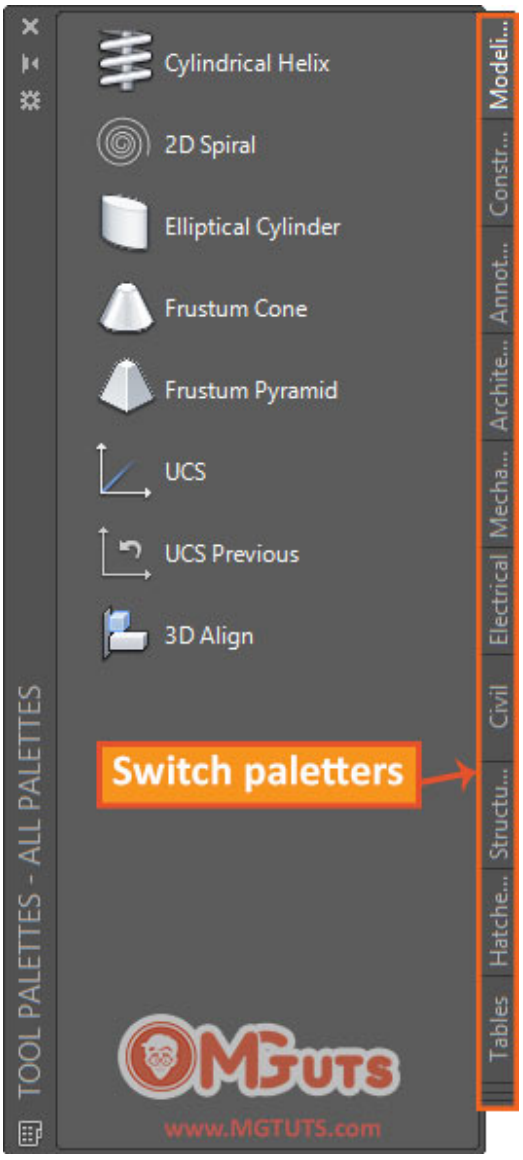
To use blocks you can just click on any block and based on what blocks contains you will be asked to do to some steps. Maybe you will be asked to enter scale or maybe enter other parameters.

There are two types of blocks.

Static blocks – contains groups of primitives that always static.

Dynamic blocks – Contains groups of primitives that can be dynamically changed.

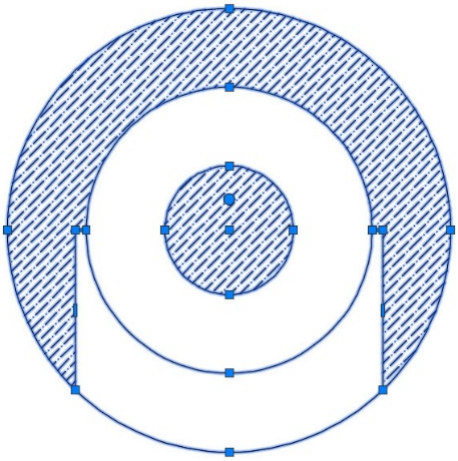
One of the coolest thing in Blocks is – if you will create a block and use that block in many places of your project, then you don't need open and edit all of them one by one when you need it. If block just copied then, when you will edit one of them changes will touch all same named blocks.



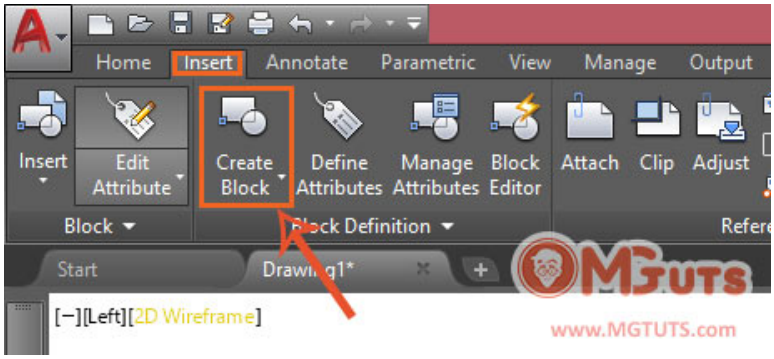
Creating block

Now let's create our first block. To do that we need create some group of objects.

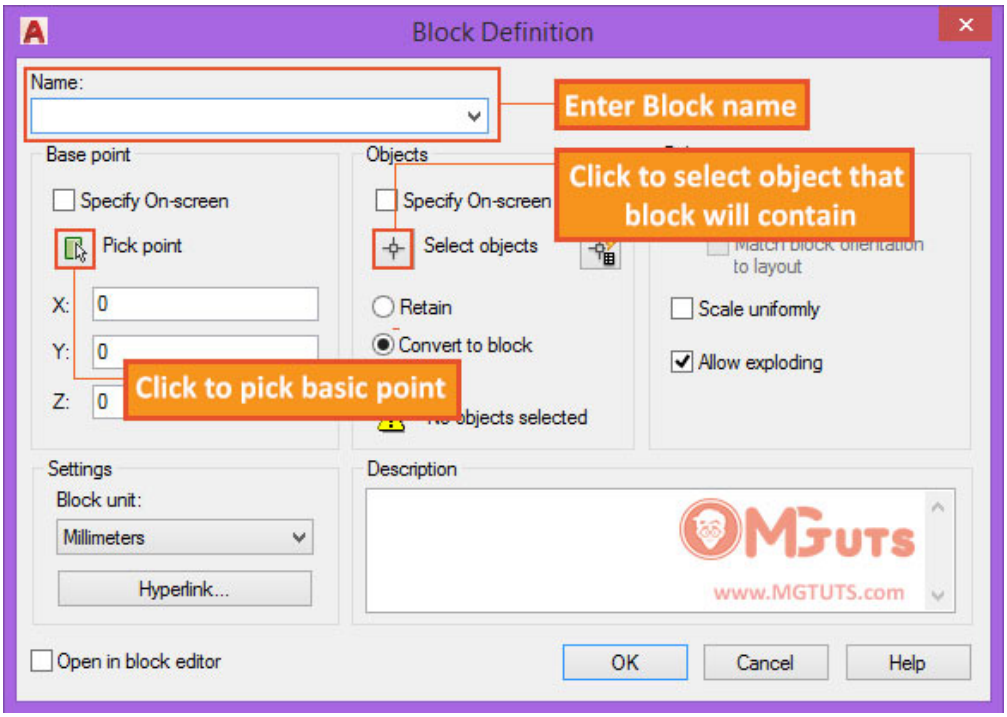
To use this object again or use in another drawing we should convert it into block.



To do that switch to **Insert** tab and click on **Create block**.



You will see **Block Definition**



If you already selected objects then you will see a little thumbnail of object.

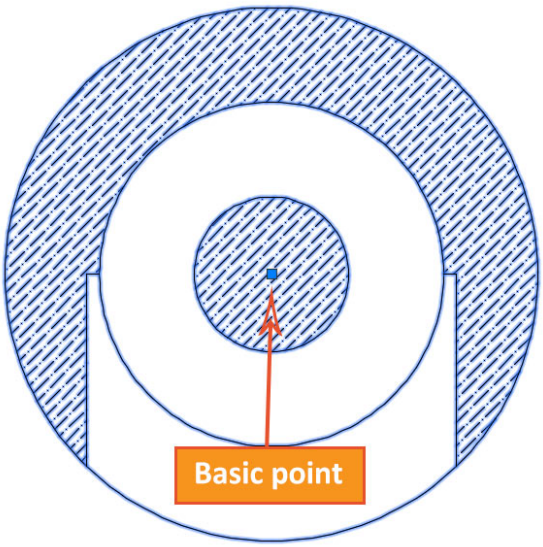
1. Enter name that you want

2. Select on **Select objects** to select objects. When you will select all objects hit **Enter** to confirm selection.

3. Next, you need to specify Basic point. Of course, you can not show point. In that situation you can check **Specify On-screen** and Autocad will pick automatically. But I recommend you pick a point because it is easy to control object.

After you will finish all these steps hit **OK.**

As you can see after you convert an object into the block it has only one point.



Text in Autocad

While you are drawing you may want to add some text notes into your drawing and here we will learn how you can do it.

Go to the **Annotation tab** and on left side of the tool ribbon, you see an icon of **Text** tool.

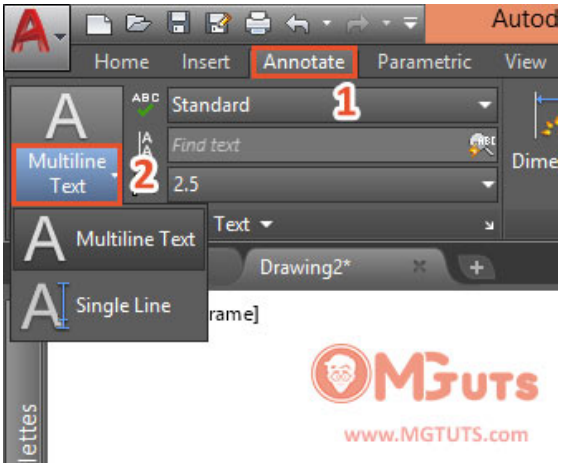
There is two type of text tools.

Multiline

Single line

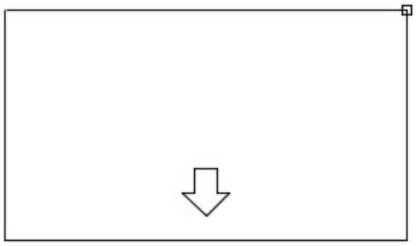
Now let's add some text into our drawing. Multiline is default for text tool.

If you will click on Text tool icon Autocad will ask you **Specify first corner.** What does it mean?

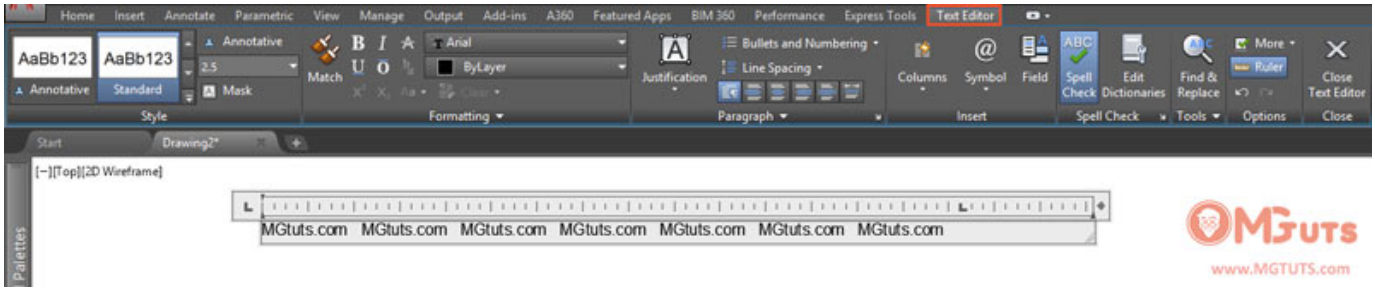


As it is multiline text for first you need show rectangle where you will enter your text.

After you will specify rectangle you can enter your text.



Autocad not a text editor but it has advantage tools to work with text. When you will begin enter text you will see a new tab named **Text editor.**

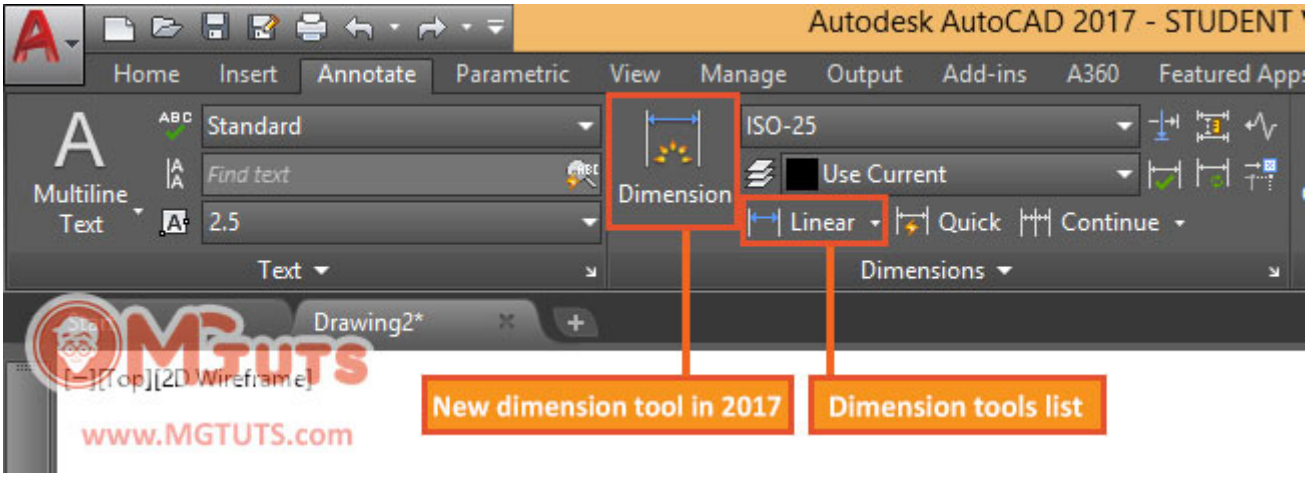


In this tab you can find all tools that related to text. If you can use MS Word then you easily use standard tools. There are also have some advanced tool that you can learn in our premium video tutorials.

Dimensions

When you already drew your project you need show dimensions of drawing. In this way you will need learn another tool called **Dimensions.**

Dimensions is very easy to use. You can find Dimension tool in **Annotate tab**.

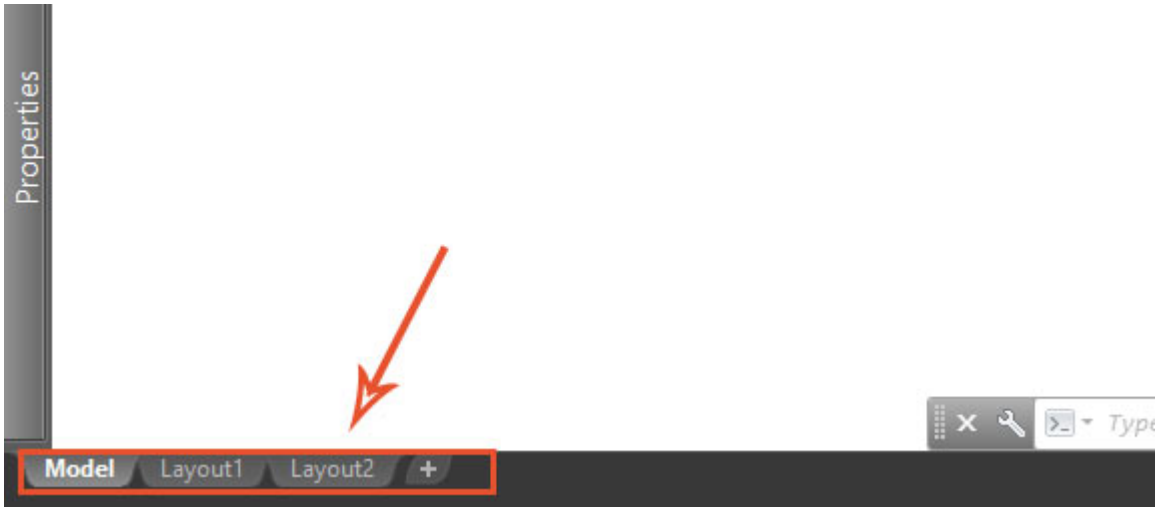


In Autocad 2017 version developers add new tool that automatically recognize object and give dimensions. What does it mean? For instance, before when you need to add some dimensions to **Rectangle** and **Circle** you must use two different dimension tools **Linear** and **Diameter** or **Radius** dimensions.

Dimensions is very easy to use. Just activate dimension tool and select object or point of object and you will get dimension. Try to use this tool yourself.

Understanding Model and Layout

If you notice on bottom left corner had tabs from where you can switch between Model and Layouts.



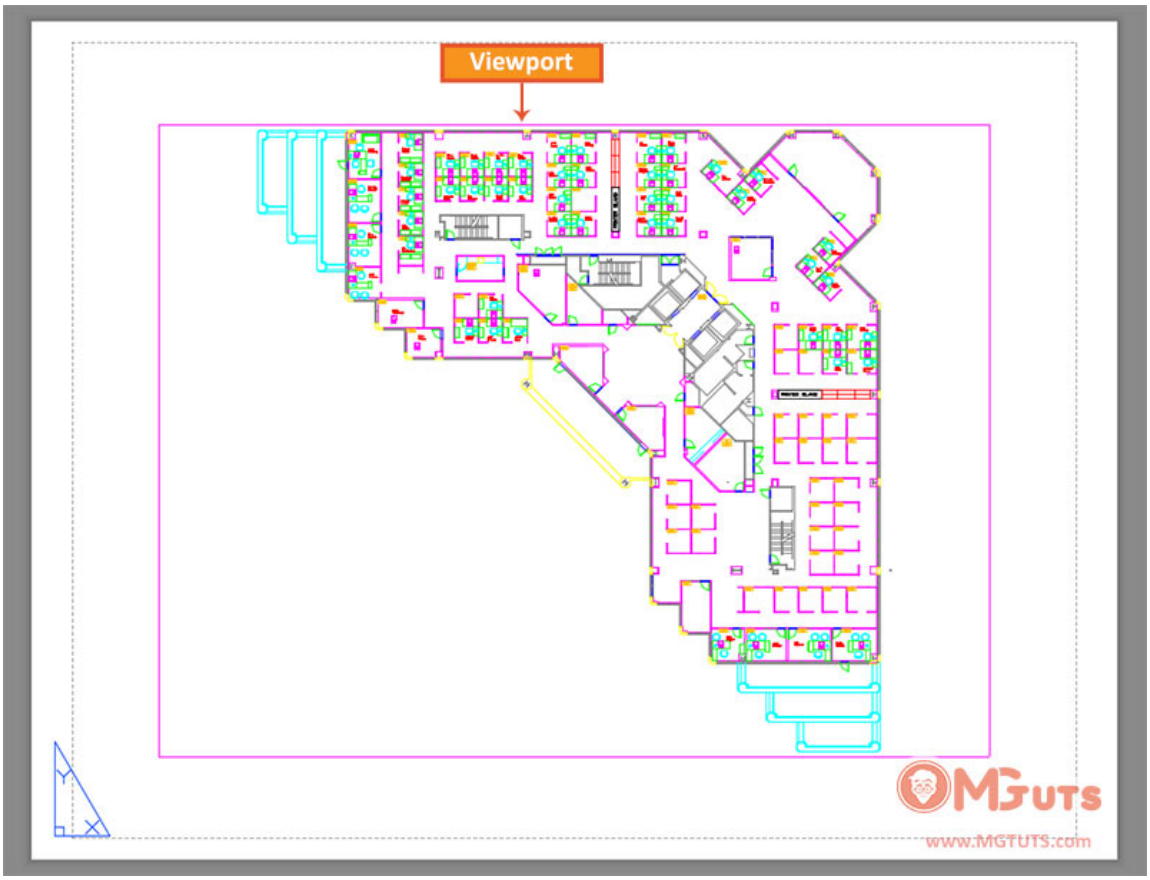
So what is the difference between them and how we should use them?

As you know when we are working and drawing something you are doing it in **Model** section. When you already done and you want to print your project, that's it is little bit hard to do in **Model** section. As Autocad workspace size very big that Solar system can be drawn inside it in original size, you will faced with different problems in printing with different scales.

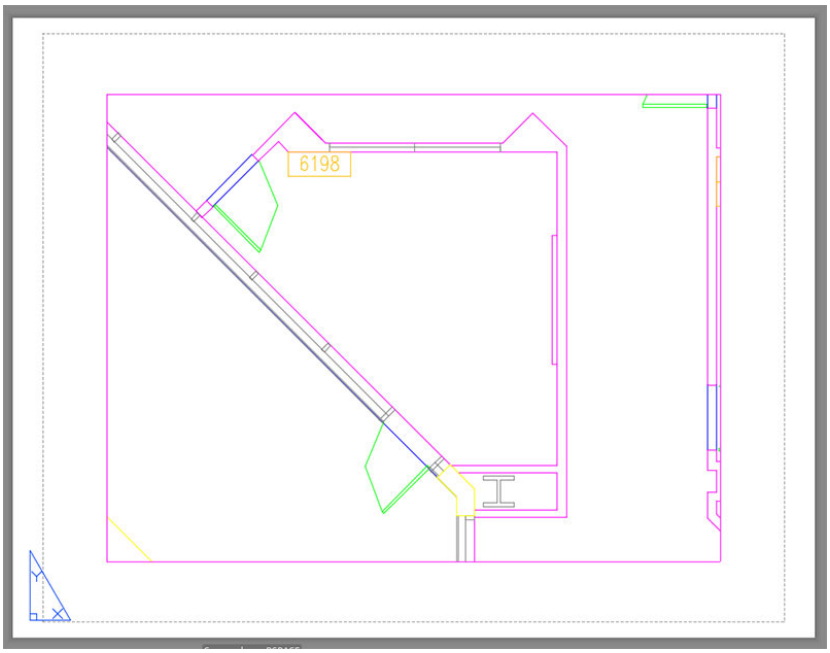
For this situation Autocad has **Layouts**. You can create a layout in any standard paper size like A4, A3 and others. In Layouts we can create form for our drawing. We can print our project in many different scales like 100:1 or any other scales.

Now let's switch to Layout1 and see what we can do there.

As you can see we have empty A4 layout with single Viewport. Viewport is window to model workspace.



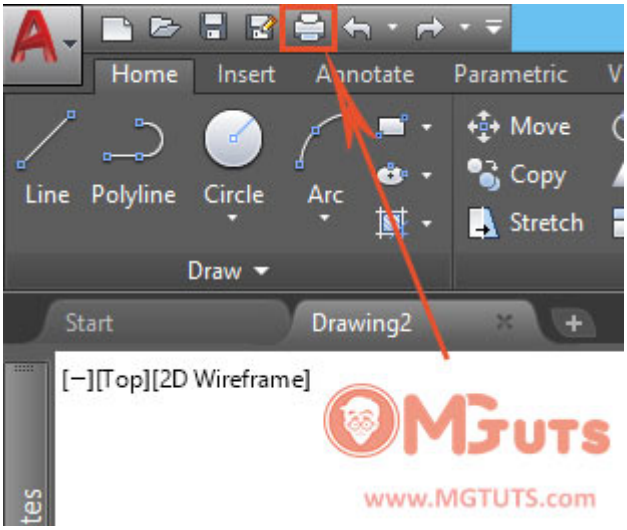
With a double click on viewport you can enter inside model. You can navigate, zoom and edit objects. When you will ready just double click outside of viewport to exit.



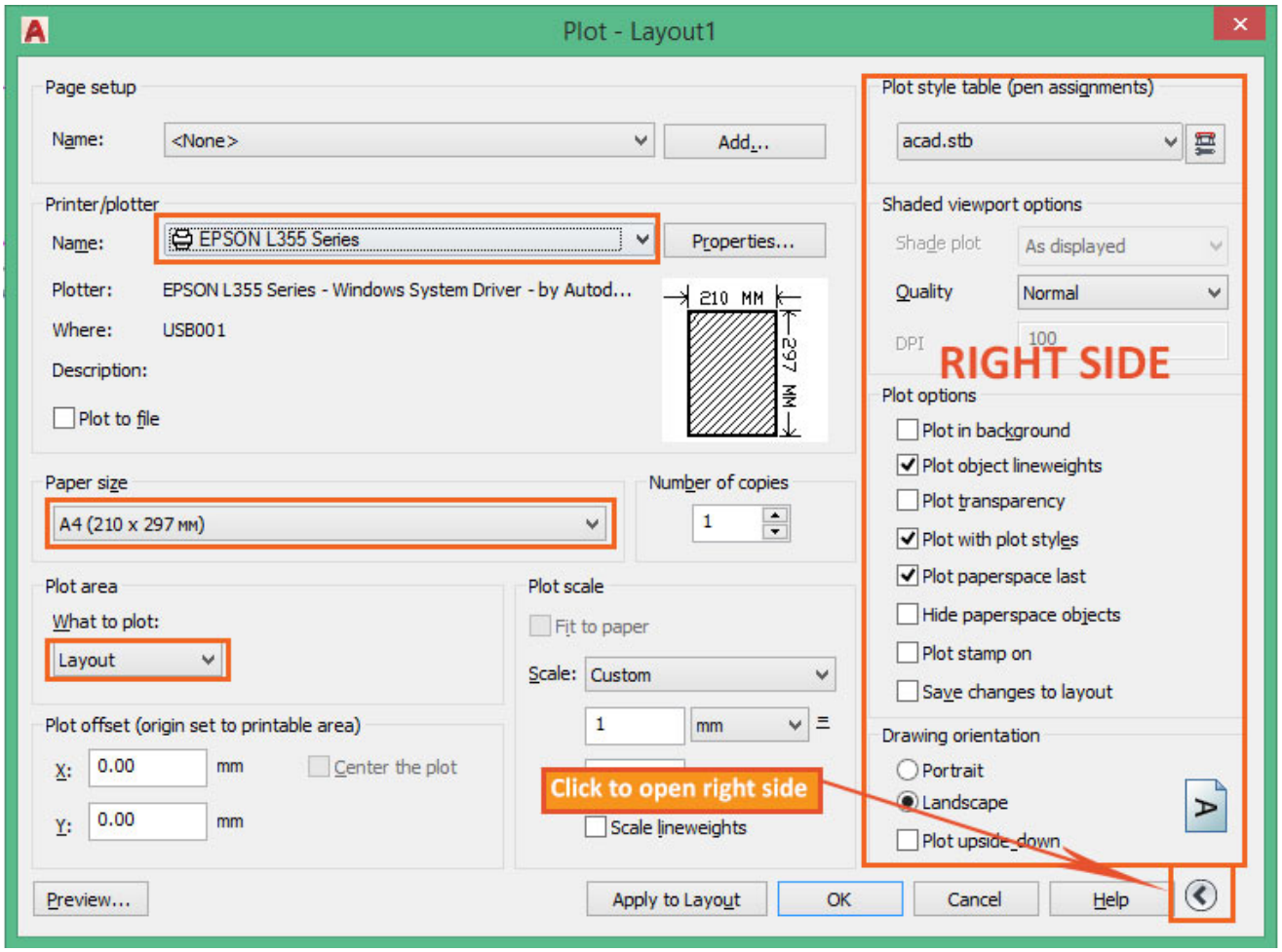
As you can see I zoom part of the drawing. When I will print it, only this part that seen in the viewport will be printed.

Plot / Print

We are already at the end of this small ebook. At last, what we should do is Print our project. To do that you can click on icon that located in **Quick panel**.



You will see print configuration window. There a lot of configuration and we won't deep into them. To print normally change configuration like in the image below and hit **Ok** to print your drawing.



In this mini e-book, I try to explain you basics of Autocad. Here you learn from how to download and install to draw and print our drawings.

As I say this is only top of the iceberg. Autocad is very huge and deep software. There a lot of things that you need to learn to work properly.

You can learn Autocad easily in our website MGtuts.com. Also, you can join to our community at our website. Ask or answer and get points, earn badges and proof that you are professional.

Best regards

Murad Gulaliyev

MGtuts.com